Vol. 922 Number 2

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

PATENTS

May 14, 1974

U. S. DEPARTMENT OF COMMERCE
Patent Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 14, 1974 Volume 922 Number 2

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PATENT OFFICE NOTICES

Claims Copied from Patents

Applicants and their attorneys or agents are reminded of the requirement of Rule 205(b) (37 CFR 1.205(b)) of the Rules of Practice that "Where an applicant presents a claim copied or substantially copied from a patent, he must, at the time he presents the claim, identify the patent, give the number of the patented claim, and specifically apply the terms of the copied claim to his own disclosure, unless the claim is copied in response to a suggestion by the Office."

The requirement of Rule 205(b) (37 CFR 1.205(b)) applies to claims copied in an application at the time of filing as well as to claims copied in an amendment to a pending application. If an applicant, attorney, or agent presents a claim copied or substantially copied from a patent without complying with Rule 205(b) (37 CFR 1.205(b)) the examiner may be led into making an action different from what he would have made had he been in possession of all the facts. Therefore, failure to comply with Rule 205(b) (37 CFR 1.205(b)), when submitting a claim copied from a patent, may result in the issuance of an Order To Show Cause why the application should not be stricken from the files of the Patent Office. If a satisfactory answer is not filed within the period set in the Order it may be necessary to strike the application under Rule 56 (37 CFR 1.56).

This reminder is being published to emphasize to applicants and their attorneys or agents the importance of complying with the requirement of Rule 205(b) (37 CFR 1.205(b)) at the time the claim is copied.

WILLIAM FELDMAN,
Apr. 10, 1974. *Acting Assistant Commissioner for Patents.*

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents on or before June 14, 1974.

Frei, Frederick S., 180 Wallace Road, G–6, Nashville, Tenn. 37211

Korkosz, Arthur E., 10023 Campus Way S., Upper Marlboro, Md. 20870

Leaheey, Joh B., 1505 E. Central Road, Arlington Heights, Ill. 60080

Mentlik, William L., 2000 S. Eads St., #411, Arlington, Va. 22202

Ribando, Brian L., 94 Elinor Ave., Mill Valley, Calif. 94941

Rosenbaum, Charles F., 319 Broadleaf Drive, Vienna, Va. 22180

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,441,758, M. A. Garbell, FLUID-FOIL LIFTING SURFACE, **filed** June 6, 1963, D.C., S.D. Calif. (Los Angeles), Doc. 63–658–PH, *Maurice A. Garbell et al.* v. *The Boeing Co.* Order, plaintiffs owner of patent, Claims, 1, 2, 3 and 7 are invalid, pursuant to Rule 54(b) of FRCP, Oct. 1, 1973. **Same, filed** June 6, 1963, D.C., S.D. Calif. (Los Angeles), Doc. 63–659–PH, *Maurice A. Garbell et al.* v. *Douglas Aircraft Co.* Judgment, pursuant to Rule 54(b) of FRCP, plaintiffs owners of patent, Claims 1, 2, 3 and 7 are invalid, Oct. 1, 1973.

2,636,994, J. Neufeld, SPECTROMETER, **filed** Oct. 12, 1973, Ct. of Claims (District of Columbia), Doc. 126–70, *Serge A. Scherbatskoy* v. *The United States and Nuclear-Chicago Corporation.* Order, judgment entered for plaintiff and against defendant, Oct. 19, 1973.

2,742,378, T. A. TeGrotenhuis, FILLERS HAVING VINYL SILOXANE GROUPS BONDED TO THE SURFACE THEREOF AND COPOLYMERS THEREOF WITH ETHYLENICALLY UNSATURATED POLYMERIZABLE MONOMERS, **filed** Mar. 27, 1963, D.C., N.D. Ohio (Cleveland, Doc. C63–208, *Westwood Chemical, Inc.* v. *Molded Fiber Glass Body Company.* Order granting summary judgment in favor of defendant, Oct. 25, 1973.

2,781,005, Taylor, MacFarlane and Stephenson, METHOD OF REDUCING VANADIUM CORROSION IN GAS TURBINES, **filed** Dec. 21, 1973, D.C. Conn. (New Haven), Doc. 12316, *Chessco Industries, Inc.* v. *Basic, Incorporated.* Judgment entered on defendant's counterclaim that patent is invalid and void, final decree entered, Sept. 7, 1973.

2,838,877, K. C. Working, SOIL CONDITIONING, **filed** Apr. 19, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71–937–RJK, *Sapphire Process Corporation* v. *Johnson Sawdust, Inc.* Filed judgment and order, patent is invalid, defendant has not infringed said patent and complaint is dismissed with prejudice, Oct. 18, 1973.

2,877,501, R. Bradt, GLASS-REINFORCED THERMOPLASTIC INJECTION MOLDING COMPOUND AND INJECTION-MOLDING PROCESS EMPLOYING IT, **filed** Mar. 28, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c676, *Rexall Drug and Chemical Company* v. *E. I. du Pont de Nemours and Company.* Judgment in favor of plaintiff Oct. 4, 1972, notice of appeal by defendant Oct. 12, 1972, transmitted record to U.S.C.A. Nov. 21, 1972.

2,920,977, B. F. Adams, CELLULAR SURFACE COVERING HAVING AN EMBOSSED APPEARANCE. **filed** Oct. 12, 1973, D.C.N.J. (Camden), Doc. 1469–73, *Armstrong Cork Company* v. *Congoleum Industries, Inc.*

2,967,997, R. D. McCoy, METHOD AND APPARATUS FOR CHECKING ELECTRONIC ANALOG COMPUTERS, **filed** Jan. 30, 1964, D.C., S.D. Calif. (Los Angeles), Doc. 64–135–JWC, *Revves Instrument Corp. and Dynamics Corp.* v. *Beckman Instrument Inc.* Final judgment, ordered, plaintiffs own all right, title and interest in patent, with all rights of infringement, Claims 7, 8, 13 of patent are valid, and have been infringed by defendant, defendant hereby enjoined from Claims 7, 8 and 13 of patent for the remainder of the term of patent, Oct. 1, 1973.

2,969,838, A. E. Wilde, COMBINATION SHEARING AND SHUT-OFF RAM, **filed** Oct. 25, 1973, D.C., S.D. Tex. (Houston), Doc. 73–H–1472, *Cameron Iron Works, Inc.* v. *The Rucker Company.*

3,031,042, J. W. R. Drackett, CEILING CONSTRUCTION, **filed** Oct. 23, 1973, D.C., S.D. Fla. (Miami), Doc. 73–1658–C–NCR, *Earl Benjamin* v. *Gladwin Plastics of Miami, Inc.*

3,048,498, Juvinall and Marsh, ELECTROSTATIC SPRAY COATING SYSTEM; **3,169,882,** Juvinall, Kock, and Marsh, ELECTROSTATIC COATING METHODS AND APPARATUS, **filed** May 26, 1970, D.C.N.J. (Newark), Doc. C–671–70, *Electrogasdynamics, Inc.* v. *Ransburg Electro-Coating Corp. and Eclipse Equipment Co.* Stipulation and order of dismissal without costs, Aug. 29, 1973.

3,169,882. (See 3,048,498.)

3,182,164, R. Ironfield, ELECTROMAGNETIC ENERGY SEAL, **filed** Oct. 12, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2631, *Matsushita Electric Industrial Co., Ltd. and Matsushita Electric Corporation of America* v. *Raytheon Company.*

3,185,207, D. R. Humble, DECORATION STRUCTURE, **filed** Aug. 16, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–1901–AAH, *Soundfold, Inc.* v. *Eastern Carpet Co., Inc., Phillip Sperling et al.* Consent judgment, Soundfold owner of patent and patent is valid, defendants have infringed Claim 1 of patent. All action, including all counterclaims dismissed with prejudice, except to a charge of infringement, Sept. 28, 1973.

3,346,052, Moore and Davidson, FOLDING BOOM AERIAL WATER DELIVERY APPARATUS FOR MOBILE FIRE FIGHTING EQUIPMENT; **3,675,721,** Davidson and Morris, FIRE FIGHTING APPARATUS WITH TELESCOPING BOOM, **filed** Oct. 19, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–2375, *Reading Techmatic Corporation* v. *A-T-O, Inc.*

3,351,073, R. G. Gregg, COIFFURE PROTECTORS; **3,561,011,** same, HEAD PROTECTOR, **filed** Aug. 15, 1973, D.C. Fla. (Miami), Doc. 73–1356–C–CF, *Richard Gregg Manufacturing Company, Inc.* v. *Betty Dain Creations, Inc.*

3,351,148, S. M. Solomon, SELF-OPERABLE DETACHABLE POWER UNIT ATTACHMENT FOR WHEEL CHAIRS AND POWER CONTROL UNIT THEREFOR, **filed** Sept. 10, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–2135–MML, *Shawn M. Solomon and Motorette Corp.* v. *Everest & Jennings, International.*

3,381,207, E. E. Guthrie, COMPACT FREQUENCY MULTIPLIER, **filed** Oct. 1, 1973, D.C., N.D. Calif. (San Francisco), Doc. C–73–1751 WTS, *Frequency-West, Inc.* v. *California Microwave Inc.*

3,438,520, M. A. Williams, SLUG FILLING OF BINS, **filed** May 21, 1973, D.C., W.D. Okla. (Oklahoma City), Doc. 73–353–C, *CMI Corporation* v. *Metropolitan Enterprises, Inc. and Metropolitan Paving Company.* Defendants' motion for summary judgment to dismiss cause under Rule 56 sustained, Sept. 27, 1973.

3,481,228, Dickmann, Flick and Palmer, POWER TONG ASSEMBLY AND CONTROL MEANS THEREFOR; **3,481,229,** Dickmann and Palmer, POWER TONG ASSEMBLY AND TRANSMISSION MEANS THEREFOR, **filed** June 20, 1972, D.C., S.D. Tex. (Houston), Doc. 72–H–811, *Byron Jackson, Inc.* v. *Peck Sales & Service, Inc.* Stipulated, in accordance with Rule 41(a)(1)(ii) of FRCP, complaint and counterclaim dismissed without prejudice, Oct. 17, 1973.

3,481,229. (See 3,481,228.)

3,523,607, Gillemot and Thompson, SERVICE WIRE ENCAPSULATING KIT, **filed** Apr. 13, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71–885–DWW, *Communications Technology Corp., George W. Gillemot, and John T. Thompson* v. *The Dexter Corp.* Filed order dismissing plaintiffs' claim entered Sept. 26, 1973.

3,557,774, E. Kreis, HEAT STORAGE DISH, **filed** Oct. 15, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2637, *Kreis Ag.* v. *American Hospital Supply Corporation et al.*

3,561,011. (See 3,351,073.)

3,614,325, Galian and Kuryla, TELEPHONE AND SIGNALING SYSTEM, **filed** Oct. 18, 1973, D.C., M.D. Fla. (Tampa), Doc. 73–528–C T.K., *Letot, Inc.* v. *Communication Equipment & Contractor Co., Inc. and Hawaiian Village Ltd. et al.*

3,620,454, Broderick, Wishnie, and Keys, FLAME SPRAY TORCH, **filed** Sept. 26, 1973, D.C. W.D. Pa. (Pittsburgh), Doc. 73–0827, *Eutectic Corporation Inc.* v. *Co-Ordinated Industries, Inc. and Richard O. Drossman.*

3,653,474, B. D. Sadow, ROLLING LUGGAGE, **filed** Oct. 17, 1973, D.C. Fla. (Miami), Doc. 73–1639–C–NCR, *United States Luggage Corp.* v. *Federated Department Stores, Inc.*

3,675,721. (See 3,346,052.)

3,704,352, J. G. Fontaine, COMPOSITE SEAT AND SWITCH, **filed** Oct. 26, 1973, D.C., W.D. Wash. (Seattle), Doc. 644–73C2, *Safe Stop Brake Corporation* v. *General Motors Corporation.*

3,730,182, M. P. Boghosian, METHOD OF DELIVERY OF SOLUTION TO SKIN HAVING SUBSTANTIAL AMOUNTS OF HAIR THEREON, **filed** July 24, 1973, D.C., N.D. Calif. (San Francisco), Doc. C–73–1897–CBR, *Allergan Pharmaceuticals* v. *Barnes-Hind Pharmaceuticals, Inc.*

3,748,688, I. L. Berkowitz, SELF-CLOSING DOOR HINGES, **filed** Oct. 23, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73C1577, *Kason Hardware Corporation* v. *Buildex Incorporated.*

D. 223,046, J. Nance, DESK; **D. 223,616,** D. Woods, FILE RACK, **filed** Mar. 26, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73–695, *J. G. Furniture Company, Inc.* v. *Furnwood Corporation, Albert Straff and Straff Associates.* Consent decree, defandans are hereby enjoined from making, using or selling any desk or file rack which falls within the claim of either patent, Oct. 11, 1973.

D. 223,616. (See D. 223,046.)

Certificates of Correction for the Week of May 14, 1974

Re. 27,878	3,759,783	3,773,489	3,782,800
3,568,710	3,761,490	3,773,623	3,782,915
3,617,750	3,761,666	3,773,628	3,782,948
3,628,092	3,761,845	3,733,631	3,783,307
3,644,591	3,762,234	3,773,751	3,783,447
3,672,526	3,763,074	3,773,866	3,783,487
3,681,348	3,764,549	3,733,954	3,783,650
3,685,416	3,764,587	3,774,169	3,783,700
3,693,588	3,764,693	3,774,175	3,783,983
3,696,093	3,764,705	3,774,205	3,784,350
3,699,583	3,765,589	3,774,211	3,784,754
3,719,683	3,765,779	3,774,545	3,785,194
3,721,723	3,766,117	3,774,561	3,785,839
3,723,418	3,766,143	3,775,171	3,786,022
3,725,211	3,766,243	3,775,760	3,786,200
3,727,371	3,766,441	3,775,859	3,786,309
3,729,091	3,766,563	3,775,889	3,786,436
3,729,474	3,766,728	3,776,089	3,786,522
3,736,327	3,767,001	3,776,213	3,786,619
3,738,497	3,767,235	3,776,637	3,786,664
3,738,757	3,768,628	3,776,669	3,786,853
3,739,086	3,768,855	3,777,256	3,787,190
3,739,296	3,769,011	3,777,622	3,787,264
3,741,871	3,769,249	3,778,134	3,787,394
3,743,099	3,769,317	3,778,325	3,787,569
3,743,379	3,769,779	3,778,385	3,787,637
3,746,585	3,769,858	3,778,841	3,787,798
3,746,927	3,770,010	3,778,918	3,787,816
3,747,872	3,770,034	3,779,042	3,787,942
3,749,381	3,770,172	3,779,103	3,788,100
3,749,630	3,770,519	3,779,137	3,788,412
3,749,958	3,770,643	3,779,191	3,788,464
3,752,045	3,770,796	3,779,523	3,789,082
3,752,803	3,770,939	3,779,953	3,789,562
3,753,277	3,771,127	3,780,252	3,789,662
3,753,971	3,771,228	3,781,091	3,789,811
3,755,162	3,771,649	3,781,138	3,789,832
3,756,052	3,771,869	3,781,178	3,789,963
3,756,880	3,772,065	3,781,213	3,790,421
3,757,154	3,772,242	3,781,226	3,790,533
3,757,374	3,772,407	3,781,929	3,790,938
3,757,646	3,772,420	3,782,087	3,791,805
3,758,104	3,772,533	3,782,102	3,791,839
3,758,592	3,772,836	3,782,196	3,792,081
3,759,461	3,773,141	3,782,771	
3,759,745	3,773,248	3,782,774	

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

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DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

DEPARTMENT OF THE AIR FORCE

AF/JACP, Washington, D.C. 20314

Patent application 338,728. Improved Air Generating Mechanism for an Aircraft Air Cushion Takeoff and Landing System. Filed Mar. 7, 1973. PC $5/MF $1.45.

Patent 3,747,558. Cross-Mounted Mask Changer With Thickness Monitoring. Filed Nov. 3, 1972. Patented July 24, 1973. Not available NTIS.

Patent 3,747,875. V/Stol Aircraft-by-Pass Engine Having a Double, Thrust Diverter Valve Assembly. Filed Nov. 4, 1971. Patented July 24, 1973. Not available NTIS.

Patent 3,748,892. High Precision Dilatometer. Filed Apr. 18, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,749 022. Two-Stage Arming Mechanisms. Filed Oct. 14, 1971. Patented July 31, 1973. Not available NTIS.

Patent 3,749,914. Vehicle Attitude Sensor. Filed Dec. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,749,963. Device To Aid in Centering of High Energy Electric Particle Beams in an Evacuated Drift Tube. Filed May 19, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,013. Microstrip Plasma Probe. Filed Oct. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,048. Window for High Power Gaseous Lasers. Filed May 17, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,750,182. Suppressed Sidelobe Equal Beamwidth Millimeter Horn Antenna. Filed Aug. 8, 1972. Patented July 31, 1973. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch,
Federal Building, General Services Division,
Agricultural Research Service,
Hyattsville, Md. 20782

Patent application 272,812. Novel Process for the Preparation of Tris (Hydroxymethyl) Phosphine and Tris (Hydroxymethyl) Phosphine Oxide. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 288,813. N,N-Bis(2-(3-Carboalkoxypropionyloxy)Ethyl)-Oleamides. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 293,748. Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 295,778. Process for Improving Abrasion Resistance of Resilient Fabrics. Filed Oct. 6, 1972. PC $4/MF $1.45.

Patent application 311,611. Dry-Structured Foams From Animal Hide Glues. Filed Dec. 4, 1972. PC $4/MF $1.45.

Patent application 348,801. N-Substituted Fatty Acid Amide Lubricants. Filed Apr. 6, 1973. PC $4.25/ MF $1.45.

Patent application 376,973. Chicken Coop Unstacking Machine. Filed July 6, 1973. PC $4/MF $1.45.

Patent application 382,793. Pyrolyzed Tall Oil Products as Synthetic Rubber Tackifiers. Filed July 26, 1973. PC $4/MF $1.45.

Patent 3,676,207. Permanent Sizing of Yarns and Fibers With Durable Polymers and Copolymers for the Production of Fabrics With Improved Properties for Particular End Uses. Filed July 15, 1970. Patented July 11, 1972. Not available NTIS.

Patent 3,707,024. Method for Electrostatically Bulking and Impregnating Staple Yarns. Filed Mar. 31, 1971. Patented Dec. 26, 1972. Not available NTIS.

Patent 3,725,001. Phosphinidynetrimethanol Triacetate and Its Application to Cellulosic Materials. Filed Aug. 21, 1970. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,733,257. Radiation Initiated Process for the Graft Copolymerization of Binary Monomer Mixtures and Cellulose. Filed Nov. 19, 1971. Patented May 15, 1973. Not available NTIS.

Patent 3,746,644. N-Substituted Fatty Acid Amide Lubricants. Filed Aug. 31, 1971. Patented July 17, 1973. Not available NTIS.

Patent application 288,840. N-Benzyl-N-2-Acetoxyethyl-Oleamide. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 292,730. Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 306,771. Process for Reacting Sultones With Cellulosic Materials to Produce Cellulosic Materials Having Both Basic and Acidic Groups. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 306,772. Production of Phosphorus and Nitrogen Containing Compounds and Polymers and Flameproofing Organic Textiles. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 315,731. Process for Increasing Receptivity to Fluorescent Whitening Agents in Resin-Treated Cellulosic Textiles. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent applicant 315,753. Flame-Resistant Organic Textiles Through Treatment With Halogen Containing Soluble Methylol Phosphine Adducts. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent application 321,417. Removal of Free Formaldehyde From Solutions of Methylolated Carbamate Finishing Agents and Textiles Treated Therewith. Filed Jan. 5, 1973. PC $4/MF $1.45.

Patent application 328,205. Flame Retardant Polymers Made From Hydroxymethylphosphorus Compounds and Guanazoles and Process for Treating Organic Textiles. Filed Jan. 31, 1973. PC $4.50/MF $1.45.

Patent application 335,861. Preparation of Cellulose N,N-Dimethylformimidate Chloride in Textile Form, and Conversion to Halogenodeoxycelluloses and Cellulose Formate, Filed Feb. 26, 1973. PC $4.25/MF $1.45.

Patent application 376,971. Quaternary Arylaminoalkyl Phosphonium Salts and Process for the Preparation Thereof. Filed July 6, 1973. PC $4/MF $1.45.

Patent 3,732,256. Reduced Maleopimaric Acid and Process for its Preparation. Filed Mar. 26, 1971. Patented May 8, 1973. No available NTIS.

Patent 3,745,835. Air Static Pressure and Temperature Measuring Device for Remote Locations in Stored Porous Material. Filed Nov. 1, 1971. Patented July 17, 1973. Not available NTIS.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health, Chief, Patent Branch, Westwood Building, Bethesda, Md. 20014

Patent 3,784,467. Droplet Countercurrent Chromatography. Filed May 26, 1971. Patented Jan. 8, 1974. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW., Washington, D.C. 20240

Patent 2,799,574. Electric Smelting Process for Manganese Ores. Filed Feb. 10, 1953. Patented July 16, 1957. Not available NTIS.

Patent 2,808,886. Selective Plugging of Gas-Injection Oil Wells in Oil Field Gas-Drive Projects. Filed July 8, 1953. Patented Oct. 8, 1957. Not available NTIS.

Patent 2,812,288. Destructive Distillation of Hydrocarbonaceous Materials. Filed Oct. 11, 1950. Patented Nov. 5, 1957. Not available NTIS.

Patent 2,817,885. Means for Orienting Diamonds in Hard Vector Directions in Diamond Bits and Tools. Filed Nov. 10, 1953. Patented Dec. 31, 1957. Not available NTIS.

Patent 2,867,478. Pulsating Counter-Flow Feeder. Filed June 9, 1958. Patented Jan. 6, 1959. Not available NTIS.

Patent 2,882,328. Controller for Regulating the Resistance of a Melt. Filed Nov. 12, 1957. Patented Apr. 14, 1959. Not available NTIS.

Patent 2,907,204. Improved Vane-Type Soil Testing Apparatus. Filed July 23, 1956. Patented Oct. 6, 1959. Not available NTIS.

Patent 2,960,771. Exaggeration Profile Plotter. Filed Apr. 14, 1958. Patented Nov. 22, 1960. Not available NTIS.

Patent 3,008,802. Recrystallizing a Reconstituted Fluorine-Mica Sheet. Filed Mar. 18, 1957. Patented Nov. 14, 1961. Not available NTIS.

Patent 3,022,842. Automatic Batch Weighing Device for Filling or Unloading. Filed Dec. 19, 1958. Patented Feb. 27, 1962. Not available NTIS.

Patent 3,027,750. Apparatus for Studying Phase Relationships of Gases and Gas Mixtures. Filed Feb. 24, 1959. Patented Apr. 3, 1962. Not available NTIS.

Patent 3,073,387. Method for Removal of Liquid and Solid Materials From Gas-Well Bores. Filed Oct. 22, 1959. Patented Jan. 15, 1963. Not available NTIS.

Patent 3,109,872. Cooler and Humidifier for Subsoil Centrifuge. Filed Aug. 29, 1961. Patented Nov. 5, 1963. Not available NTIS.

Patent 3,117,000. Activation of Inert or Passive Metals. Filed Mar. 15, 1962. Patented Jan. 7, 1964. Not available NTIS.

Patent 3,126,327. Electrolytic Method for Extracting the Chromium Values From Chromium Oxide Bearing Ores. Filed Dec. 4, 1962. Patented Mar. 24, 1964. Not available NTIS.

Patent 3,136,060. Device Isopachometer. Filed Mar. 6, 1961. Patented June 9, 1964. Not available NTIS.

Patent 3,136,627. Process and Apparatus for Selective Condensation of Metals. Filed June 11, 1959. Patented June 9, 1964. Not available NTIS.

Patent 3,137,080. Vitavue Relief Model Technique. Filed Mar. 16, 1962. Patented June 16, 1964. Not available NTIS.

Patent 3,140,170. Magnesium Reduction of Titanium Oxides in a Hydrogen Atmosphere. Filed Nov. 23, 1962. Patented July 7, 1964. Not available NTIS.

Patent 3,149,006. Prevention of Embrittlement of Metals. Filed Jan. 31, 1963. Patented Sept. 15, 1964. Not available NTIS.

Patent 3,174,857. Edge Isolation of Photographic Imagery. Filed June 25, 1962. Patented Mar. 23, 1965. Not available NTIS.

Patent 3,185,564. Method of Agglomerating Iron Ore Fines. Filed Apr. 24, 1964. Patented May 25, 1965. Not available NTIS.

Patent 3,192,912. Process for Separating the Rare Earth Elements by Means of Solvent Extraction. Filed Aug. 9, 1962. Patented June 29, 1965. Not available NTIS.

Patent 3,204,605. Live Fish Grading Apparatus. Filed July 29, 1964. Patented Sept. 7, 1965. Not available NTIS.

Patent 3,219,521. Method for Controlling Petromyzon Marinus. Filed Apr. 11, 1957. Patented Nov. 23, 1965. Not available NTIS.

Patent 3,221,906. Sealing System for Blast Furnace Bells for High Pressure Top Operation. Filed Feb. 11, 1964. Patented Dec. 7, 1965. Not available NTIS.

Patent 3,277,615. Air-Inflated Building Structure. Filed Apr. 14, 1964. Patented Oct. 11, 1966. Not available NTIS.

Patent 3,287,920. Device for Securing a Plug in an Infusion Hole. Filed Dec. 20, 1961. Patented Nov. 29, 1966. Not available NTIS.

Patent 3,302,701. Turbulence Promoter for Increased Heat and Mass Transfer. Filed Oct. 19, 1965. Patented Feb. 7, 1967. Not available NTIS.

Patent 3,463,922. Mineral Ore Exploration Apparatus Utilizing Neutron Activation. Filed July 29, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,482,637. Process and Method for Quenching Incipient Gas-Air Explosions. Filed Oct. 20, 1967. Patented Dec. 9, 1969. Not available NTIS.

Patent 3,791,934. Helical Multistage Flash Distillation Unit. Filed Aug. 9, 1971. Patented Feb. 12, 1974. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—Code GP–2, Washington, D.C. 20546

Patent application 419,748. Strain Arrestor Plate. Filed Nov. 28, 1973. PC $3/MF $1.45.

Patent application 428,992. Particulate and Solar Radiation Stable Coating for Spacecraft. Filed Dec. 27, 1973. PC $3/MF $1.45.

Patent application 437,556. Transparent Fire Resistant Polymeric Structures. Filed Jan. 29, 1974. PC $3.50/MF $1.45.

Patent 3,732,397. Inherent Redundancy Electric Heater. Patented May 8, 1973. Not available NTIS.

Patent 3,780,563. In Situ Transfer Standard for Ultrahigh Vacuum Gage Calibration. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,933. Modification of One Man Life Raft. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,205. Temperature Compensated Digital Inertial Sensor. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,698. Heater-Mixer for Stored Fluids. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,699. Bimetallic Fluid Displacement Apparatus. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,835. Optical Instruments. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,250. Adaptive Voting Computer System. Patented Jan. 1, 1974. Not available NTIS.

Disclaimer

3,605,109.—*Tommy N. Tyler,* Englewood, and *Peter R. Lowe,* Denver, Colo. METHOD AND APPARATUS FOR PRODUCING CONTINUOUS GRAPHIC DISPLAYS FROM INTERMITTENTLY SAMPLED DATA. Patent dated Sept. 14, 1971. Disclaimer filed Mar. 6, 1974, by the assignee, *Honeywell Inc.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17 and 20 of said patent.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 13, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-07-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-23-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-24-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	5-04-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-05-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	9-05-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	11-06-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	2-23-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	1-04-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-27-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	4-27-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-17-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	5-02-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—Director (Vacant). Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-07-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	7-11-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—Director (Vacant). Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	1-22-73

Expiration of patents: The patents within the range of numbers indicated below expire during April 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,787,000 to 2,790,970, inclusive
Plant Patents..... Numbers 1,586 to 1,597, inclusive

REISSUES

MAY 14, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

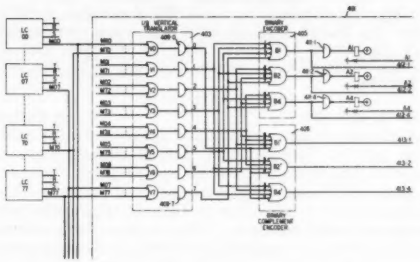
28,007
MULTIPLE MARK DETECTORS FOR END MARKED SWITCHING NETWORKS

Louis Emanuel Thelemaque, Longmont, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Original No. 3,692,943, dated Sept. 19, 1972, Ser. No. 145,734, May 21, 1971. Application for reissue Aug. 6, 1973, Ser. No. 385,899

Int. Cl. H04q *3/42*

U.S. Cl. 179—18 GF **18 Claims**



A switching system utilizing an end marked network has circuitry for detecting the presence of double marks on either side of the network. The network functions in the conventional manner to complete a connection between a line side and a trunk side circuit in response to the application of a single mark on each side. In response to the simultaneous application of two or more marks to either side, the detection circuitry recognizes this as a trouble condition, generates an alarm signal, and prevents the network from attempting to respond to the simultaneously applied marks.

28,008
VALVE STRUCTURE FOR CONTROLLING DISCHARGE OF WASTE LIQUID INTO PNEUMATIC SEWAGE DISPOSAL SYSTEM

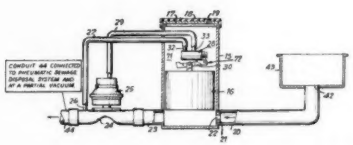
Sven Algot Joel Liljendahl, Kallhall, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Original No. 3,628,194, dated Dec. 21, 1971, Ser. No. 54,927, July 15, 1970. Application for reissue Apr. 9, 1973, Ser. No. 349,428

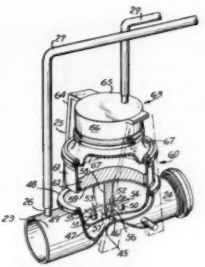
Claims priority, application Sweden, Sept. 8, 1969, 12,366/69

Int. Cl. E03d *1/00, 5/00, 3/00*

U.S. Cl. 4—10 **21 Claims**



Waste liquid is discharged into a pneumatic sewage disposal system through a discharge conduit from the outlet of a place in a kitchen or laundry or a fixture in a bathroom like a bathtub or washbasin, for example. Flow control structure is operatively associated with the



discharge conduit which opens when liquid starts to flow from the outlet and closes when the flow of liquid stops.

28,009
METHOD FOR MEASURING THE COAGULATION TIME OF ORGANIC SUBSTANCES (AND ALBUMINOID LIQUIDS), SUCH AS BLOOD, AND APPARATUS FOR CARRYING OUT SUCH A METHOD

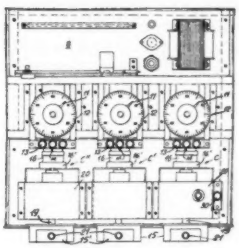
Guido Vicario, Piazza Giulio Cesare 14, Milan, Italy

Original No. 3,511,084, dated May 12, 1970, Ser. No. 669,804, Sept. 22, 1967. Application for reissue Jan. 27, 1971, Ser. No. 110,439

Claims priority, application Italy, Oct. 3, 1966, 28,427/66

Int. Cl. G01n *33/16*

U.S. Cl. 73—64.1 **12 Claims**



A method for measuring the coagulation time of albuminoid substances and liquids, such as blood, characterized by utilizing the intercepting property of a light beam on a photoelectric cell from liquid state blood (with respect to a light beam which is to periodically pass through it); the test-tube being at a horizontal position during the firing of said beam, and at a vertical position for the remaining cycle period, which will continue until, on clot being achieved, the blood remains on the bottom of the test-tube and the light beam by passing therethrough will cause the apparatus to be stopped and provide a signal for the exact time taken for coagulation.

28,010

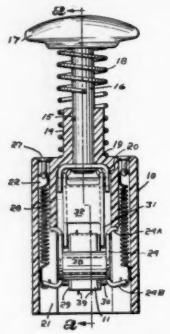
DEVICE FOR DISPENSING AND APPLYING PRESSURE SENSITIVE TAPE

David G. Way, Littlefield Road, Boxborough, Mass. 01720

Original No. 3,455,769, dated July 15, 1969, Ser. No. 552,662, Apr. 25, 1966, which is a continuation-in-part of application Ser. No. 500,746, Oct. 22, 1965. Application for reissue July 14, 1971, Ser. No. 162,613

Int. Cl. B65c *1/02*

U.S. Cl. 156—530 **33 Claims**



Dispensers are disclosed for applying sections of pressure sensitive adhesive tapes to a surface. Each dispenser has a feed block about which the tape from a rotatably supported roll is trained and which has a plurality of angularly disposed faces with the corners providing transverse cutting edges. Each block is rotatably supported by a frame reciprocable between an operative position and a surface engaging position and, as an incident of the movement of the frame into the latter position, the block is turned to place a trailing face in a position for engagement with the surface. The frame also has an anvil disposed to coact with the trailing corner of a face to sever the tape on a leading face to provide a tape section. The feed block has means operable to detachably anchor the tape to each face on engagement of the tape therewith and movable into an inoperative position on engagement with the surface. The dispenser also includes means operable as a drag on the roll.

28,011

PHARMACEUTICAL PREPARATION

Matthew C. Urbin, 4524 La Barca Drive, Tarzana, Calif. 91356

No Drawing. Original No. 3,639,579, dated Feb. 1, 1972, Ser. No. 96,998, Dec. 10, 1970, which is a continuation of abandoned application Ser. No. 864,526, Oct. 7, 1969. Application for reissue Nov. 20, 1972, Ser. No. 308,000

Int. Cl. A61k *19/00*

U.S. Cl. 424—94 **6 Claims**

A pharmaceutical preparation is provided for the treatment of hemorrhoids, and which contains oxidase enzymes, such as monoamine oxidase, or diamine oxidase, or both. The object of the invention is to destroy the amines formed in the colon by bacteria. The amines are destroyed by the oxidizing action of the oxidases on the tissue and by the production of oxygen. The oxygen is produced, in some instances, by the action of the tissue itself, or a catalase enzyme may be added to the preparation which will decompose the hydrogen peroxide which is present into water and oxygen.

PLANT PATENTS

GRANTED MAY 14, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,547
BALD CYPRESS TREE

Earl Cully, R.R. 5, Jacksonville, Ill. 62650

Filed Dec. 27, 1971, Ser. No. 212,827
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—50 1 Claim

This disclosure concerns a new and distinct variety of *Taxodium distichum* (L.) (commonly known as bald cypress) characterized by its rapid growth, abundant forking of stem from near to the ground and strong growth of lateral branches resulting in a multibranched large tree with a crown diameter approaching 80% of its height.

3,548
POND CYPRESS TREE

Earl Cully, R.R. 5, Jacksonville, Ill. 62650

Filed Dec. 27, 1971, Ser. No. 212,826
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—50 1 Claim

This disclosure concerns a new and distinct variety of Gymnospermae, Pinacea (Taxodiacea), commonly known as a pond cypress, characterized by its rapid growth, its distinctive growth of the numerous primary branches which leave the main stem at an angle of 65 to 70 degrees below vertical, its uniform short branch length, with the length of its longer branches not exceeding about one-twelfth of the tree height.

3,549
CHRYSANTHEMUM PLANT

Edmund R. Niklas, 12059 SE. Valley View Terrace, Clackamas, Oreg. 97015, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and said Duffett assignors to said Niklas

Filed Jan. 2, 1973, Ser. No. 320,112
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—76 1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Illini Trophy by its more intense deep lavender color; flowers approximately ¼" smaller in diameter; darker green foliage which is smaller in length and width; approximately 2" to 3" shorter growth habit, approximately 2 to 5 days earlier response which is also more uniform from plant to plant, and by its flatter decorative flower form which has less tendency than Illini Trophy to develop reflexing of the petals and a higher crowned flower.

3,550
APPLE TREE

Otto J. Klaas, Batchtown, Ill., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.

Filed Jan. 8, 1973, Ser. No. 321,915
In[4]. Cl. A01h *5/03*
U.S. Cl. Plt.—34 1 Claim

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a late blooming and fruit-ripening habit comparable to "'Rome Beauty" (unpatented), a fruit and cavity shape comparable to that of "Rome Beauty," with a burrowed basin resembling that of the fruit of "Starking Delicious," thick and waxy fruit skin having a deep red color resembling the fruit skin of "Starking Delicious," with the texture of the fruit being firmer and the fruit flavor being more acid than the fruit of "Starking Delicious" and more pleasing than the fruit flavor of "Rome Beauty," and an ability of the fruit to hang on the tree until fully colored and ripe without premature dropping.

PATENTS

GRANTED MAY 14, 1974

GENERAL AND MECHANICAL

3,810,259

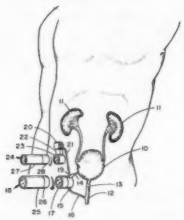
IMPLANTABLE URINARY CONTROL APPARATUS

George D. Summers, Bethesda, Md., assignor to Fairchild Industries, Inc., Germantown, Md.

Continuation of Ser. No. 109,308, Jan. 25, 1971, abandoned, which is a division of Ser. No. 842,921, July 18, 1969, Pat. No. 3,575,158. This application Apr. 6, 1973, Ser. No. 348,644

Int. Cl. A61f *1/24*

U.S. Cl. 3—1 **7 Claims**



An implantable urinary control apparatus for controlling the flow of urine from the bladder including a pump adapted to be connected to the bladder for pumping urine out of the bladder and into a natural or artificial channel so that it can be from the fromthe body. The apparatus also includes a sensor adapted to be connected to the natural or to an artificial urinary bladder for detecting the pressure in the bladder as it fills with urine, and an alarm unit connected to the sensor for giving warning that the bladder is filling with urine when the sensor detects the pressure caused by urine in the bladder.

3,810,260

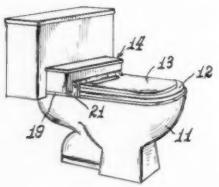
HYGIENIC APPARATUS

Frank Lodi, Chicago, Ill., assignor to Sani-Seat, Inc., Chicago, Ill.

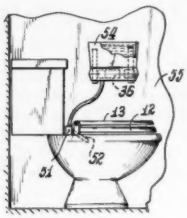
Filed July 10, 1972, Ser. No. 270,297

Int. Cl. A47k *3/22, 11/08*

U.S. Cl. 4—7 **11 Claims**



A hygienic apparatus comprised of a housing that is fixedly associated with a toilet having a seat, which housing contains a water container and an impeller assembly operable for directing a jet stream of water from the container through a nozzle located in the area of the toilet bowl beneath the seat and outwardly toward the opening in the seat. The water container includes a normally closed valve component that is opened when associated with the impeller assembly, and the apparatus has motor and pump means and self-contained energy means for powering the motor and pump.



3,810,261

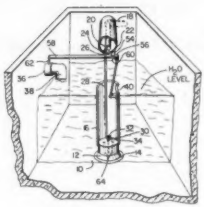
FLUSH VALVE ASSEMBLY FOR TANK

Kurt W. Hollander, Box 693, Annapolis, Md.

Filed Nov. 8, 1971, Ser. No. 196,696

Int. Cl. E03d *1/36;* **F16k** *31/52*

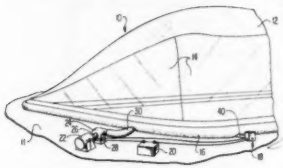
U.S. Cl. 4—41 **7 Claims**



A tank has an outlet valve which is elevated above a valve seat by a flush mechanism, and an upwardly extending pipe attached to and movable with the outlet valve. After the tank is flushed, the tank is refilled via liquid entering through an inlet valve until the liquid level reaches a predetermined level and overflows into the pipe triggering a link which results in closing the inlet valve.

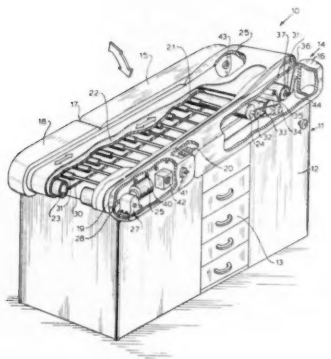
The invention has particular utility in conventional toilet water tanks but may also be used in other applications in which accumulation and discharge of a predetermined volume of liquid is desired.

3,810,262
AUTOMATIC PRESSURIZATION SYSTEM FOR INFLATED POOL ENCLOSURE
John B. Strand, P.O. Box 711, El Cerrito, Calif.
Filed Apr. 27, 1973, Ser. No. 354,974
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.12 **7 Claims**



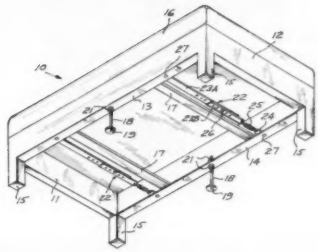
An air duct extends beneath the water tube of an air supported plastic film pool enclosure with its external end opening up into a box having a pivotable blade which normally overlies the end of the duct and which pivots away from the duct under applied air pressure. A switch senses blade inclination to control an air blower which, in turn, delivers air under pressure to the enclosure to maintain desired inflation pressure. A pivotable door on one side of the box opens the box interior to the atmosphere and modulates blade inclination under applied air pressure.

3,810,263
MEDICAL EXAMINING TABLE
Clifton I. Taylor, PO Drawer M, and Charles W. Hardwick, 600 W. 27th St., both of Sanford, Fla.
Filed Oct. 26, 1972, Ser. No. 300,911
Int. Cl. A61g *7/10, 1/02*
U.S. Cl. 5—81 R **14 Claims**



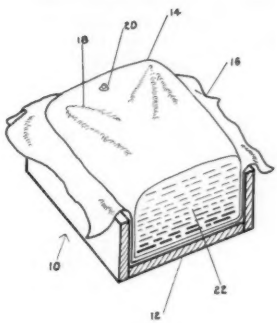
A medical examining table apparatus having a plurality of rollers connected to a framework with an endless belt riding on the rollers. The framework may be incorporated into a table or placed on top of an existing table with the endless belt being motor driven by the operator. Paper or other sheet material is fed over a portion of the belt between a feed roller and a takeup roller actuated by the movement of the belt through two pulleys and a belt drive and provides a protective sanitary cover for the belt.

3,810,264
BED DEVICE
Richard H. Mueller, 603 S. Water St., Sapulpa, Okla.
Filed May 26, 1972, Ser. No. 257,339
Int. Cl. A47c *19/22*
U.S. Cl. 5—220 **1 Claim**



A combination of two devices applied to a bed frame prevents the spread and sag of the bed rails.

3,810,265
VISCOSITY CONTROL ADDITIVE FOR WATER BEDS AND OTHER AQUEOUS-FILLED FURNITURE
David P. McGrew, Denver, Colo., assignor to Curtis H. Castleman, Jr., Denver, Colo., a part interest
Filed Aug. 4, 1971, Ser. No. 169,064
Int. Cl. A47c *27/08*
U.S. Cl. 5—348 WB **2 Claims**



Unpleasant bouncing or other oscillations resulting from movements upon aqueous filled furniture or other apparatus, e.g., a water bed, is inhibited by filling the furniture with aqueous fluid and additionally a water soluble viscosity increasing agent. Other additives such as preservatives or algicides are preferably incorporated into the aqueous fluid. This increased viscosity imparts a dampening effect to water movement within the furniture for comfort of the user(s) and yet provides the uniform cushioned buoyancy attributable to conventional water filled furniture.

3,810,266
HARDTOP COVER FOR CONVERTIBLE RUNABOUT BOATS
John A. Iller, Seattle, Wash., assignor to Adabelle E. Iller, Seattle, Wash., a part interest
Filed Sept. 28, 1971, Ser. No. 184,530
Int. Cl. B63b *29/02*
U.S. Cl. 9—1 R **6 Claims**

A cover structure including front, rear and opposite side marginal edge portions and for support in generally horizontal

PATENTS

GRANTED MAY 14, 1974

GENERAL AND MECHANICAL

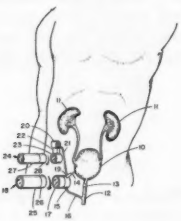
3,810,259
IMPLANTABLE URINARY CONTROL APPARATUS

George D. Summers, Bethesda, Md., assignor to Fairchild Industries, Inc., Germantown, Md.

Continuation of Ser. No. 109,308, Jan. 25, 1971, abandoned, which is a division of Ser. No. 842,921, July 18, 1969, Pat. No. 3,575,158. This application Apr. 6, 1973, Ser. No. 348,644

Int. Cl. A61f 1/24

U.S. Cl. 3—1 7 Claims



An implantable urinary control apparatus for controlling the flow of urine from the bladder including a pump adapted to be connected to the bladder for pumping urine out of the bladder and into a natural or artificial channel so that it can be from the fromthe body. The apparatus also includes a sensor adapted to be connected to the natural or to an artificial urinary bladder for detecting the pressure in the bladder as it fills with urine, and an alarm unit connected to the sensor for giving warning that the bladder is filling with urine when the sensor detects the pressure caused by urine in the bladder.

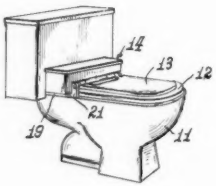
3,810,260
HYGIENIC APPARATUS

Frank Lodi, Chicago, Ill., assignor to Sani-Seat, Inc., Chicago, Ill.

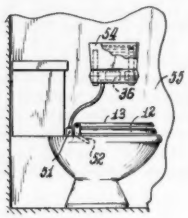
Filed July 10, 1972, Ser. No. 270,297

Int. Cl. A47k 3/22, 11/08

U.S. Cl. 4—7 11 Claims



A hygienic apparatus comprised of a housing that is fixedly associated with a toilet having a seat, which housing contains a water container and an impeller assembly operable for directing a jet stream of water from the container through a nozzle located in the area of the toilet bowl beneath the seat and outwardly toward the opening in the seat. The water container includes a normally closed valve component that is opened when associated with the impeller assembly, and the apparatus has motor and pump means and self-contained energy means for powering the motor and pump.



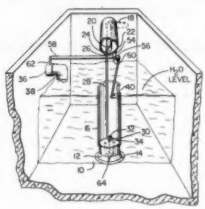
3,810,261
FLUSH VALVE ASSEMBLY FOR TANK

Kurt W. Hollander, Box 693, Annapolis, Md.

Filed Nov. 8, 1971, Ser. No. 196,696

Int. Cl. E03d 1/36; F16k 31/52

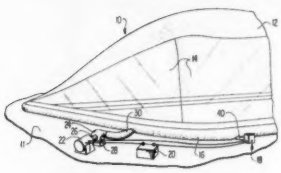
U.S. Cl. 4—41 7 Claims



A tank has an outlet valve which is elevated above a valve seat by a flush mechanism, and an upwardly extending pipe attached to and movable with the outlet valve. After the tank is flushed, the tank is refilled via liquid entering through an inlet valve until the liquid level reaches a predetermined level and overflows into the pipe triggering a link which results in closing the inlet valve.

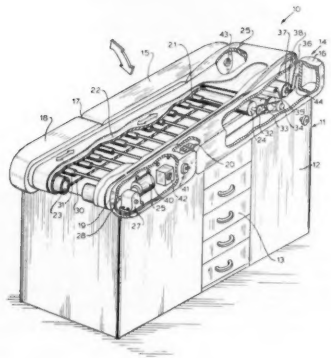
The invention has particular utility in conventional toilet water tanks but may also be used in other applications in which accumulation and discharge of a predetermined volume of liquid is desired.

3,810,262
AUTOMATIC PRESSURIZATION SYSTEM FOR INFLATED POOL ENCLOSURE
John B. Strand, P.O. Box 711, El Cerrito, Calif.
Filed Apr. 27, 1973, Ser. No. 354,974
Int. Cl. E04h 3/16, 3/18
U.S. Cl. 4—172.12 7 Claims



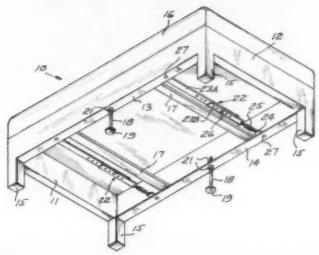
An air duct extends beneath the water tube of an air supported plastic film pool enclosure with its external end opening up into a box having a pivotable blade which normally overlies the end of the duct and which pivots away from the duct under applied air pressure. A switch senses blade inclination to control an air blower which, in turn, delivers air under pressure to the enclosure to maintain desired inflation pressure. A pivotable door on one side of the box opens the box interior to the atmosphere and modulates blade inclination under applied air pressure.

3,810,263
MEDICAL EXAMINING TABLE
Clifton I. Taylor, PO Drawer M, and Charles W. Hardwick, 600 W. 27th St., both of Sanford, Fla.
Filed Oct. 26, 1972, Ser. No. 300,911
Int. Cl. A61g 7/10, 1/02
U.S. Cl. 5—81 R 14 Claims



A medical examining table apparatus having a plurality of rollers connected to a framework with an endless belt riding on the rollers. The framework may be incorporated into a table or placed on top of an existing table with the endless belt being motor driven by the operator. Paper or other sheet material is fed over a portion of the belt between a feed roller and a takeup roller actuated by the movement of the belt through two pulleys and a belt drive and provides a protective sanitary cover for the belt.

3,810,264
BED DEVICE
Richard H. Mueller, 603 S. Water St., Sapulpa, Okla.
Filed May 26, 1972, Ser. No. 257,339
Int. Cl. A47c 19/22
U.S. Cl. 5—220 1 Claim



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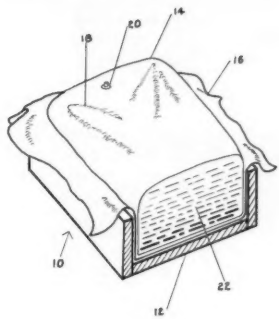
Filed Aug. 4, 1971, Ser. No. 169,064
Int. Cl. A47c 27/08
U.S. Cl. 5—348 WB 2 Claims



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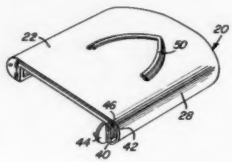
3,810,266
HARDTOP COVER FOR CONVERTIBLE RUNABOUT BOATS
John A. Iller, Seattle, Wash., assignor to Adabelle E. Iller, Seattle, Wash., a part interest
Filed Sept. 28, 1971, Ser. No. 184,530
Int. Cl. B63b 29/02
U.S. Cl. 9—1 R 6 Claims

A cover structure including front, rear and opposite side marginal edge portions and for support in generally horizontal

elevated position above the cockpit of a boat with the front marginal edge portion of the cover assembly supported from and projecting forwardly of the upper marginal edge portion of the windshield of the associated boat and the side marginal edge portions of the cover assembly disposed above corresponding opposite sidewall portions of the boat. The front marginal edge portion defines a transversely extending front storage compartment opening rearwardly beneath the cover structure and the opposite side marginal edge portions of the cover structure define longitudinally extending opposite side storage compartments.

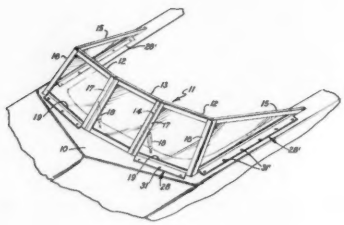


3,810,267

BOAT WINDSHIELD MOUNTING MEANS

Edward B. Fussell, Jr., Altamonte Springs, and F. Charles Maynard, Jr., Eustis, both of Fla., assignors to Walter Bonnet, Inc., Casselberry, Fla.

Filed Sept. 26, 1973, Ser. No. 400,976
Int. Cl. B63b *17/00*
U.S. Cl. 9—1 R **10 Claims**



A gasketed windshield holding frame rests on top of a boat deck or hood and is held down securely by an anchoring bracket or plate having a flange which interlocks with a groove formed in either the outer or inner side of the windshield frame near the bottom thereof. It is unnecessary to pierce through the boat deck and variations in windshield rake and boat deck contour can be accommodated.

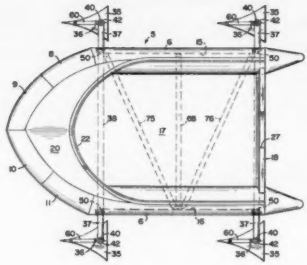
3,810,268

HYDROFOIL ATTACHMENT FOR BOATS

Don L. Weihe, Bath, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Oct. 21, 1970, Ser. No. 82,840
Int. Cl. B63b *7/00*
U.S. Cl. 9—2 R **1 Claim**

A hydrofoil attachment, preferably collapsible, is provided, for use with an inflatable boat. It comprises a frame, usually a four-sided frame, into which the boat fits, and preferably the boat on inflation fits tight into the frame so that the two are held together. Hydrofoils are attached to the frame at various locations, but they are usually found at the corners of the frame.

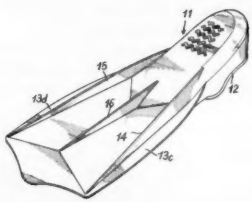


3,810,269

SWIMMER'S FOOT FIN

Kazuo Tabata, 1-3-17 Higashi-Komagata, Sumido-ku, Tokyo, and Masanari Togasaka, 768 Kisone, Yashio-cho, Minami Saitama-gun, Saitama, Japan

Filed Sept. 14, 1972, Ser. No. 289,076
Int. Cl. A63b *31/10*
U.S. Cl. 9—309 **1 Claim**



A swimmer's foot fin is provided with a blade which slopes at an angle downwardly from a foot receiving portion. This blade includes sloping areas which form an inverse V-section to decrease the profile drag of the blade. Additionally, the lateral edges of the blade have ribs projecting above and below the blade and supplementary propulsive areas that are angled upwardly to form additional flow channels to direct the water during the kicking movement of the swimmer's foot to control turbulent flow and aid the propulsive effect of the kick.

3,810,270

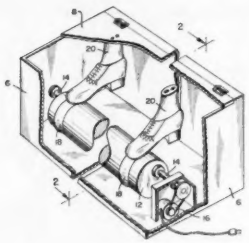
SHOE FLEXER

June S. Newman, 20 Park Ave., New York, N.Y.

Filed Mar. 29, 1973, Ser. No. 346,085
Int. Cl. A43d *11/14*
U.S. Cl. 12—41.1 **2 Claims**

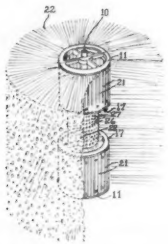
An electrically driven shoe stretcher adapted to break in and stretch a shoe in simulation of the flexure imparted to shoes in normal usage while on the human foot. The device comprises a housing and cover to which a resilient mold for in-

sertion in the shoe is attached. The mold is designed to flex in the manner of the foot in the act of walking. While the shoe



and mold are held in place by the closed cover, means are provided for breaking in the shoe and stretching it transversely.

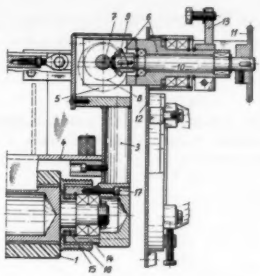
3,810,271
ROTATABLE WASHING BRUSH
Louis J. Mundo, 8550 S. Vincennes Ave., Chicago, Ill.
Filed Oct. 5, 1972, Ser. No. 295,256
Int. Cl. A46b *3/16*
U.S. Cl. 15—183 **4 Claims**



A rotatable washing brush having a plurality of brush units arranged in a longitudinal direction upon a rotatable shaft and having end sections in spaced relation with respect to each other to provide an intermediate reduced section between the ends of the shaft to accommodate protruding elements on the surface over which the brush rotates during operation.

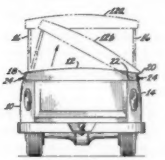
3,810,272
FLUID SPREADING AND WIPING DEVICE FOR ETCHING MACHINES FOR ROTOGRAVURE CYLINDERS
Kurt Baumgartner, Schwander, 3054 Schupfen, Switzerland
Filed Apr. 11, 1972, Ser. No. 243,367
Claims priority, application Switzerland, May 27, 1971, 7746/71
Int. Cl. B05c *1/06, 1/16*
U.S. Cl. 15—256.52 **4 Claims**

A fluid spreading and wiping device for etching machines for rotogravure cylinders including a wiping roller attached by



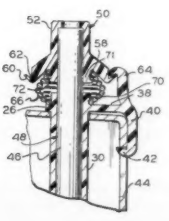
two arms to the etching trough and which arms are moved to impart a circular motion to said wiping roller.

3,810,273
LOCKING MECHANISM
Adrian L. Shute, 2541 E. Washington St., Phoenix, Ariz.
Filed May 30, 1972, Ser. No. 257,634
Int. Cl. E04d *15/50*
U.S. Cl. 16—147 **8 Claims**



A cover of the type mounted to a stationary structure in a manner so that it may be opened from either of two opposite sides is provided with a locking mechanism on each of its openable sides, the locking mechanisms are each provided with a pivot member so that by unlocking one of the sides the cover may be pivotably moved about the juncture formed between the locked side and the stationary structure.

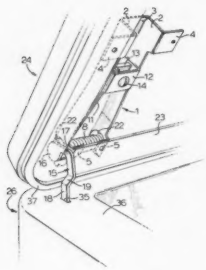
3,810,274
PIVOT AND GUIDE ROD ASSEMBLY FOR BI-FOLD DOOR
Ralph E. Ford, Harper Woods, and Kim W. Wright, Roseville, both of Mich., assignors to Evans Products Company, Portland, Oreg.
Filed July 25, 1973, Ser. No. 382,486
Int. Cl. E05d *5/12*
U.S. Cl. 16—169 **4 Claims**



Pivot and guide rod assembly for bi-fold door includes

plastic sleeve for mounting in door channel and supporting a pivot rod. A spring is arranged to urge pivot rod outwardly from sleeve, latch means being provided to retain pivot rod in retracted position during shipping and mounting of door.

3,810,275
HINGE STRUCTURE
William E. Smith, London, Ontario, Canada, assignor to GSW Appliances Limited, Weston, Ontario, Canada
Filed June 26, 1972, Ser. No. 266,368
Int. Cl. E05f 1/12
U.S. Cl. 16—189 **9 Claims**



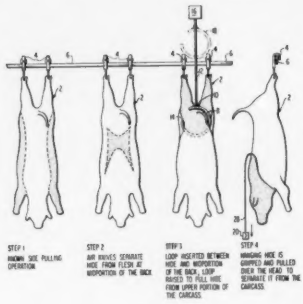
A counterbalancing hinge structure according to the invention comprises first and second hinge arms with a pintle connecting the arms for relative movement about the axis of the pintle. One of the arms is fixed to said pintle, and the other of the arms is swingable about the pintle axis, and a torsion spring is provided having a main coiled portion sleeved on the pintle with one end anchored against rotation about said pintle, and the other end extending generally radially of said pintle axis, and connected to the swingable arm.

3,810,276
METHOD OF PROTECTING SURFACES BY COATING WITH IMIDE-ESTER DERIVATIVES OF ETHENE-MALEIC ANHYDRIDE COPOLYMERS
Abraham Morduchowitz, Monsey, N.Y., assignor to Texaco Inc., New York, N.Y.
Filed Dec. 29, 1970, Ser. No. 102,539
Int. Cl. B44d 1/09
U.S. Cl. 117—132 B **5 Claims**

A method of protecting surfaces by coating the surfaces with imide-ester derivatives of ethene - maleic anhydride copolymers which are prepared in a two step reaction. These derivatives are useful as adhesives and protective coatings.

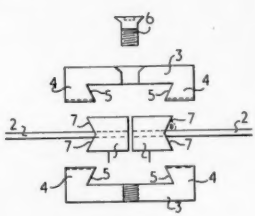
3,810,277
HIDE REMOVAL METHOD AND APPARATUS
Wilford O. Barbee, Charter Oak, Iowa, assignor to Iowa Beef Processors, Inc., Dakota City, Nebr.
Filed May 4, 1972, Ser. No. 250,209
Int. Cl. A22b 5/16
U.S. Cl. 17—21 **12 Claims**

Hides are removed from animal carcasses by forming a passage between the hide and a mid-portion of the carcass, passing an exposed end of a rigid hide stripping loop through the passage, pulling the loop longitudinally to separate one end portion of the hide from the carcass and then pulling the remainder of the hide in the opposite direction to remove it from the carcass. The latter pulling step is performed at


STEP 1
KNOWN SIDE PULLING OPERATION
STEP 2
AIR KNIVES SEPARATE HIDE FROM FLESH AT MIDPORTION OF THE BACK
STEP 3
LOOP INSERTED BETWEEN HIDE AND MIDPORTION OF THE BACK, LOOP PULLED TO PULL HIDE FROM UPPER PORTION OF THE CARCASS
STEP 4
HANGING HIDE IS GRIPPED AND PULLED OVER THE HEAD TO SEPARATE IT FROM THE CARCASS

velocities which are inversely related to the tenacity of the various portions of the hide to the carcass.

3,810,278
CONVEYOR BELTS
Michael J. Kenney, Sutton Coldfield, England, assignor to Dunlop Limited, London, England
Filed Apr. 11, 1972, Ser. No. 242,967
Claims priority, application Great Britain, Apr. 16, 1971, 09676/71; Mar. 1, 1972, 09442/72
Int. Cl. F16g 3/08
U.S. Cl. 24—31 W **8 Claims**

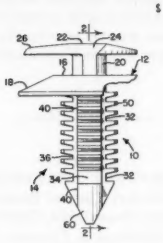


A belt coupling means comprising first abutment means secured or adapted to be secured to one end of the belt, second abutment means secured or adapted to be secured to the other end of the belt or an end of another belt, and a tie-bar which is engageable with the first and second abutment means, the abutting surfaces of the abutment means and the tie-bar having inter-locking configurations such that when the belt is in tension the coupling means is held together. This coupling means presents a quick and relatively inexpensive method by which belts, particularly wire reinforced belts, may be joined on site, with little effect on the overall strength of the belt, of which the following is a specification.

3,810,279
PLASTIC DRIVE FASTENER
Edwin Grant Swick, Des Plaines, and John Frederick Nelson, Bartlett, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Feb. 28, 1973, Ser. No. 336,852
Int. Cl. A44b 21/00
U.S. Cl. 24—73 P **8 Claims**

A one piece plastic drive fastener having a head and a shank, the shank including a generally cruciform cross section presenting a plurality of generally flat, axially extending surfaces and a plurality of angular axially extending recesses

between adjacent flat surfaces which are adapted to provide tool engaging means. Each of the flat surfaces on the stud carry a plurality of axially spaced flexible resilient wing elements with the wing elements on at least one surface being axially offset from the wing elements on the other surfaces to provide a variety of grip lengths; the wings being flexed along their straight line connection with the flat surfaces thereby permitting the manufacture of such a fastener in a simple mold design.

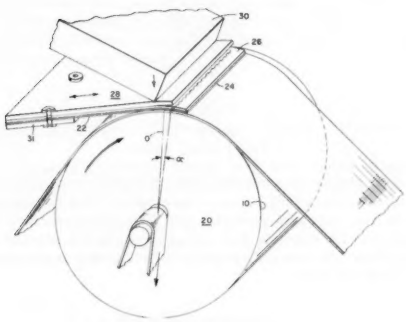


3,810,280

METHOD AND APPARATUS FOR LONGITUDINAL COMPRESSIVE TREATMENT OF FLEXIBLE MATERIAL

Richard R. Walton, 10 W. Hill Pl., Boston, Mass., and George E. Munchbach, Roslindale, Mass., assignors to said Walton, by said Munchbach

Filed Feb. 16, 1971, Ser. No. 115,606
Int. Cl. D06c *21/00*
U.S. Cl. 26—18.6 **25 Claims**



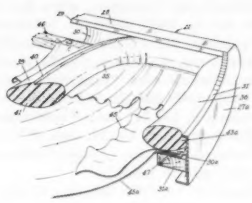
Longitudinal compressive treatments for producing a wide variety of effects in travelling lengths of sheet materials such as textile fabrics, yarns, paper, film, foil and other webs by confining the material against a drive surface by means of a confining surface and driving the material into engagement with a retarder located beyond the trailing edge of the confining surface and also in spaced relation to the drive surface. The retarding surface is provided by material which is essentially inextensible in the machine direction and is provided with a multiplicity of portions which grip and release the passing material. The confining surface is at least in part spaced closer to the drive surface than is the retarder. The forwardly driven material impinges against a column of already compressed material under the trailing portion of the confining surface and under the retarder. The drive surface propels the continuously formed column from beneath the surfaces.

3,810,281

CASKET LID INTERIOR TRIM INCLUDING MOLDED PADDING STRIPS

Arthur C. Ferber, Canal Winchester, Ohio, assignor to Belmont Casket Manufacturing Company, Columbus, Ohio

Filed July 17, 1972, Ser. No. 272,467
Int. Cl. A61g *17/04*
U.S. Cl. 27—19 **5 Claims**



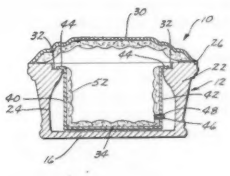
Upholstery for the interior of casket lids including preformed strips which are inserted beneath the lid flanges at the sides and ends thereof. These strips are molded as resilient strips or inserts preferably from suitable foam material, so that they can be stuffed into the spaces or pockets provided by the flanges along the sides and ends of a casket lid or half-lid. They are adapted to be covered by fabric or other flexible decorative material which can be pulled around the inserts and tucked between the resilient inserts and flanges to be gripped therebetween.

3,810,282

BURIAL DEVICE AND METHOD FOR USING SAME

Charles F. Doggett, Des Moines, Iowa, assignor to Hawkeye Machinery Corporation, Waukee, Iowa

Filed Apr. 17, 1972, Ser. No. 244,477
Int. Cl. A61g *17/00*
U.S. Cl. 27—35 **3 Claims**



The present invention comprises a reusable casket having an open top, and a removable insert sized to slidably fit within the reusable casket and adapted to be slidably removed from the top of the reusable casket. The insert has a detached lid which is sized to fit in covering relationship over the top of the insert after the insert has been removed from the casket. The lid of the insert includes vent holes therein, at one end, and the insert includes an exhaust hole at the other end thereof for permitting ventilation of the insert when it is placed within a mausoleum crypt.

3,810,283

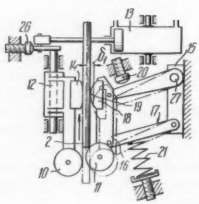
APPARATUS FOR BRAKING ROLLED BARS TO REST ON THE COOLING BED OF A BAR MILL

Evgeny Mikhailovich Vasiliev, 75 kv. 137 prospekt Verontsova; Vladimir Sergeevich Egorov, prospekt Gagarina, 2 kv. 12; Jury Nikolaevich Kovalenko, ulitsa Dnepropetrovskaya, 10g, kv. 78, all of Dnepropetrovsk; Mikhail Ivanovich Kostjuchenko, ulitsa Tramvainaya, 11, kv. 20, Krivoi Rog; Anatoly Vasilievich Litvin; Grigory Gavrilovich Pobegailo, both of prospekt K. Marxa, 53a, kv. 5, Dnepropetrovsk; Vladimir Mikhailovich Churakov, ulitsa Revoljutsionnaya, 12, kv. 24, Krivoi Rog; Alexandr Nikolaevich Lensky, prospekt Gagarina, 98, kv. 10, Dnepropetrovsk; Viktor Vladimirovich Ostapenko, ulitsa, Lenina 35, kv. 26, Krivoi Rog; Anatoly Vladimirovich Prazdnikov, ulitsa Uritskogo, 11, kv. 22, Dnepropetrovsk; Ivan Sergeevich Sidorov, ulitsa Revoljutsionnaya, 8, kv. 24; Boris Vladimirovich Khovrin, ulitsa Revoljutsionnaya, 9, kv. 39, both of Krivoi Rog, and Ljudmila Petrovna Fabrika, prospekt Ilicha 17, kv. 16, Dnepropetrovsk, all of U.S.S.R.

Filed Nov. 15, 1972, Ser. No. 306,821

Int. Cl. B21b *39/20*

U.S. Cl. 72—250 **4 Claims**



An apparatus is disclosed comprising a movable base mounted on a support and so arranged that its rear part, in the direction of the bar travel, carries a brake hold-down holding the bar against supporting means whereas on its front part is mounted arresting means clamping the bar between the supporting means and the movable base support, the arresting means being adapted to clamp the tail end of the bar when the latter while still in forward motion goes out of contact with a clamping member. The invention is aimed at reducing scrap metal losses in lining up the ends of rolled bars in "a batch" prior to their cutting to length.

3,810,284

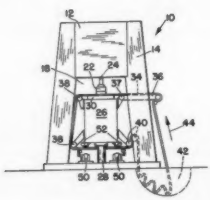
NEEDLE PUNCHING MACHINE FOR ENDLESS WEBS

Raymond E. Brochetti, Westfield, Mass., assignor to James Hunter Machine Company, Inc., North Adams, Mass.

Filed Jan. 29, 1973, Ser. No. 327,524

Int. Cl. D04h *18/00*

U.S. Cl. 28—4 R **6 Claims**



A needle punching machine for manufacturing endless webs comprising a needle beam, a bed beam for supporting the web and means for raising and lowering said bed beam within said frame, at least one end of the framework has an opening large enough for the beam to pass through, the improvement comprising first, second, third and fourth bearing means wherein the first and second bearing means are outside of the needling area and support the bed beam in a lowered position within the framework, the second and third support the bed beam in cantilever fashion when the beam is moved out of engagement with the first bearing means, and the fourth bearing means supports the bed beam when it is removed from the frame and clear of the web.

3,810,285

METHOD OF PRODUCING BULKED YARNS

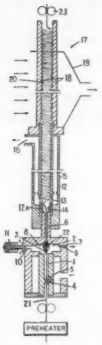
Duncan Cameron Ferrier; Thomas Berry, both of Tiverton, England, and Karel Murenbeeld, Geneva, Switzerland, assignors to John Heathcoat & Company Limited, Tiverton, Devon, England

Filed Apr. 5, 1971, Ser. No. 130,899

Claims priority, application Great Britain, Apr. 6, 1970, 16192/70; June 29, 1970, 31381/70

Int. Cl. D02g *1/20*

U.S. Cl. 28—72.11 **11 Claims**



The method of producing bulked multifilament yarn consists in carrying forward yarn impregnated with a gaseous fluid and then suddenly expanding the fluid. The separated filaments of the yarn are then brought towards one another and again carried forward, the gaseous fluid acting as the carrier on both occasions.

3,810,286

METHODS FOR MANUFACTURING HOLLOW MEMBERS

Ralph O. Kaufman, Sr., Titusville, Pa., assignor to Cyclops, Corporation, Universal-Cyclops Specialty Steel Division, Pittsburgh, Pa.

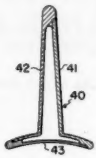
Division of Ser. No. 864,927, Sept. 10, 1969, Pat. No. 3,606,580, which is a continuation-in-part of Ser. No. 823,924, May 12, 1969. This application Apr. 26, 1971, Ser. No. 137,366

Int. Cl. B23p *15/02*

U.S. Cl. 29—156.8 H **7 Claims**

The method of constructing hollow members includes precision rolling wrought metal to form elongated shapes having a specially formed edge configuration and a plain formed remaining portion. The shapes are blanked into components before or after forming, where necessary, and the components

are positioned so that the plain formed remaining portion of one component cooperates with and is ultimately joined with



the specially formed edge configuration of another component.

3,810,287
COMPOSITE ROD OR WIRE

Michael J. Pryor, Woodbridge; Joseph Winter, New Haven, and Julius C. Fister, Jr., Hamden, all of Conn., assignors to Olin Corporation, New Haven, Conn.

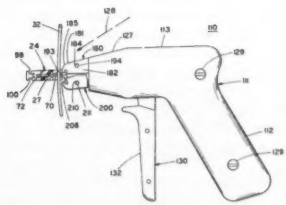
Filed June 9, 1972, Ser. No. 261,376
Int. Cl. B21c *37/00*
U.S. Cl. 29—191.6 **5 Claims**

A composite, preferably rod or wire, having a first component core of aluminum or an aluminum alloy clad with a second component of copper or a copper alloy, wherein a third component diffusion barrier of nickel, cobalt or an alloy thereof is sandwiched between said first and said second component and bonded thereto.

3,810,288
WIRE INSERTION AND SPLICING SYSTEM INCLUDING REACTION TOOL

Jack Edward Caveney, Chicago, and Roy Alleyne Moody, Flossmoor, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Feb. 10, 1972, Ser. No. 225,267
Int. Cl. H05k *13/04;* **H01r** *43/00*
U.S. Cl. 29—203 P **10 Claims**

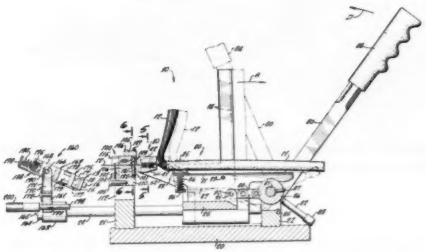


A wire termination and splicing system is disclosed and includes a slotted connector block having reaction surfaces for cooperating with a tool and a reaction type tool including an actuator, drive mechansim, a pair of electrically isolated wire insertion members, and a pair of connector gripping members, the actuator being connected to the drive mechanism which includes a full stroke device, the wire insertion members being connected to the drive mechanism and including cutting blades and camming surfaces for cooperating to close the connector gripping members onto the reaction surfaces of the connector, and the connector gripping surfaces including locating teeth to assure proper alignment of the tool on the connector prior to wire installation. An overload mechanism may be included in the drive mechanism to prevent damage to the connector block or the tool due to misuse.

3,810,289
CABLE TERMINATING MACHINE

Ad R. Hannabery, 560 Teakwood, La Habra, Calif.

Filed Apr. 16, 1973, Ser. No. 351,556
Int. Cl. H01r *43/00;* **H02g** *1/12*
U.S. Cl. 29—203 D **22 Claims**



A cable terminating machine for preparing a cable, of the type including a plurality of insulated strands of wire, for connection to a connector, of the type including a plurality of spaced, parallel contacts, and for supporting the strands and the connector during interconnection. The cable terminating machine includes apparatus for supporting the individual strands of wire in spaced apart, parallel relationship, at the ends thereof and at a point spaced from the ends thereof. Positioned between these two supporting points, the apparatus includes cutting means for cutting each of the strands along a common plane and for simultaneously removing a small amount of insulation from the end of each strand. Apparatus is also included for supporting the connector with the contacts thereof in position to receive the stripped ends of the strands so that all of such strands may be connected to the contacts simultaneously.

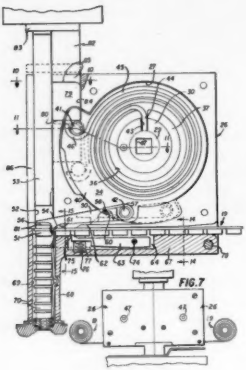
3,810,290
APPLICATION TOOL FOR PIERCE NUTS IN STRIP FORM

William L. Grube, Lake Bluff, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed Sept. 18, 1972, Ser. No. 290,240
Int. Cl. B23p *19/04;* **B23q** *7/10*
U.S. Cl. 29—208 D **11 Claims**

Disclosed is a tool for advancing pierce nuts to a position under a punch which is to attach the nuts to a sheet of metal. The tool is constructed in a manner to advance the nuts to such position upon the upward or return stroke of the punch rather than upon the power stroke thereof, the power for advancing the nuts being derived from a preloaded resilient member incorporated into the tool. A feature of the tool is the locating of the nut under the punch by indexing from the trailing edge of the nut rather than from the leading edge to avoid the inadvertent cutting of fractions of successive nuts should

the nuts be initially improperly positioned under the punch. Another feature is the narrowness of the tool housing which



permits the simultaneous application of two or more closely spaced nuts to a sheet of metal.

3,810,291

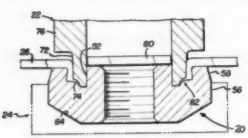
INSTALLATION DIE AND NUT AND METHOD OF INSTALLING A NUT IN A PANEL

Harold A. Ladouceur, Livonia, Mich., assignor to Multifastener Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 90,923, Nov. 11, 1970, Pat. No. 3,724,520, which is a continuation-in-part of Ser. No. 841,037, July 11, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,704

Int. Cl. B23p *11/00*

U.S. Cl. 29—243.52 **10 Claims**



This disclosure relates to the combination of a die and nut for installing a nut in a panel and a method of installing a nut in a panel.

In the disclosed embodiment of the apparatus, the piercing end of the die member is circular or annular and fits snugly into the tool receiving recess of the nut groove. In the preferred embodiment, pressure relief is provided in the nut by making the outer wall defining the tool receiving recess, or junction between the bottom walls, hexagonal or polygonal, whereby entrapped metal is extruded into the corners. The outer wall of the groove and the outer wall of the flange portion are also preferably concentric polygons with parallel sides. The die member includes an enlarged hexagonal or polygonal portion which deforms the pierced edges of the panel against the polygonal outer inclined wall of the groove.

3,810,292

CLIPPING MACHINES

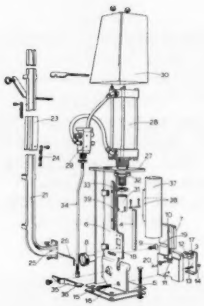
George Basil Whales, Powerscroft Rd. Cray Rd. Footscray, Sidcup, Kent, England

Filed Jan. 19, 1972, Ser. No. 219,006

Claims priority, application Great Britain, Jan. 20, 1971, 2768/71

Int. Cl. B23p *11/00*; B65b *51/04*

U.S. Cl. 29—243.57 **4 Claims**



A clipping machine for clipping bags containing meat or meat products, has a main frame in which an anvil is arranged. A magazine having a supply of wire clips is arranged to feed clips to the anvil. A plunger is movable to and from the anvil. When it moves to the anvil it deforms a wire clip round a portion of the bag on the anvil. An air motor is provided for moving the plunger or it can be moved by hand.

3,810,293

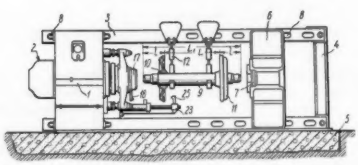
HORIZONTAL HYDRAULIC PRESS

Lev Zeilikovich Tobak, ul. Kirova, 21, kv. 7; Mikhail Galileevich Brandenburgsky, ul. Kirova, 29, kv. 14; Nikolai Iosifovich Lichman, ul. Kirova, 77, kv. 45, and Andrei Lukyanovich Lygovskoi, ul. Tenistaya, 3, kv. 37, all of Odessa, U.S.S.R.

Filed Sept. 8, 1972, Ser. No. 287,364

Int. Cl. B23p *19/02*

U.S. Cl. 29—251 **1 Claim**



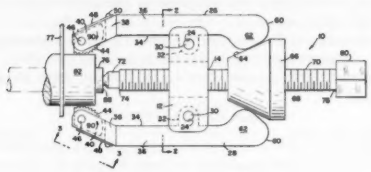
A horizontal hydraulic press wherein a ram of a press hydraulic cylinder accommodates a spring-loaded stop which, during the working stroke of the ram, interacts with a lever of an adjusting device which sets the length of the ram stroke to suit the length of the wheel pair axle being assembled.

3,810,294

DEVICE FOR REMOVING ARTICLES FROM A SHAFT

Donald F. Link, 12203 Greenleaf Dr., S.E., Huntsville, Ala.

Filed July 17, 1972, Ser. No. 272,643
Int. Cl. B23p *19/04*
U.S. Cl. 29—261 **1 Claim**



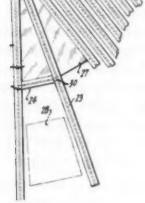
A device for removing objects mounted on shafts in which the object is gripped on a circumferential surface by eccentrically arranged cams and a force adjustably applied axially to one end of the shaft.

3,810,295

METHOD OF MAKING LAMPSHADE

Grainger Dan Kirth, 40896 Chiltern Dr., Fremont, Calif.

Filed Aug. 17, 1972, Ser. No. 281,537
Int. Cl. B23p *9/00*
U.S. Cl. 29—445 **5 Claims**



A decorative tiffany-style lampshade and method of fabricating the same. The lampshade includes a central mounting ring having a plurality of angularly spaced spokes extending outwardly and downwardly therefrom in generally radial directions. The spokes are bent at predetermined locations therealong so as to define a plurality of successive sections angularly oriented with respect to the plane of the mounting ring at progressively greater angles. The spokes are integral from end-to-end thereof, and the angularly disposed sections define tiers each of which includes a plurality of colored light-transmitting panels disposed between adjacent spokes and confined in place by tier braces disposed intermediate adjacent spokes along the outer edges of the panels. The mounting ring, spokes, and braces are all lead cames defining channels that seat the adjacent edge portions of the respectively associated panels therein.

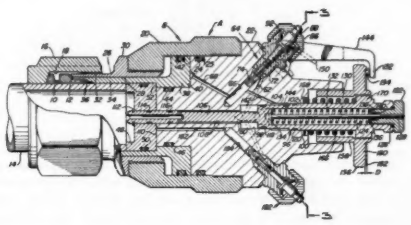
The method of fabricating the lampshade involves the provision of linear or indirectional components including the mounting ring, spokes, and braces. The spokes are secured to the straight-line mounting ring at spaced apart locations therealong so as to extend outwardly therefrom in generally parallel relation. A group of wedge-shaped first-tier panels are inserted one-by-one between successively adjacent spoke cames to displace each adjacent pair thereof angularly with respect to each other, and, at the same time to shape or form the mounting ring into a generally annular configuration with the end portions thereof adjacent each other. Such end portions of the mounting ring are secured to each other and to the associated spoke came, and the groups of panels for the second and subsequent tiers together with the second and subsequent tier came braces are respectively positioned in functional associated with the spoke cames, and the braces are secured thereto. with the spoke canes, and the braces are secured thereto.

3,810,296

METHOD OF SWAGING AND TESTING FERRULES

Leonard P. Spontelli, Seven Hills, Ohio, assignor to Crawford Fitting Company, Solon, Ohio

Division of Ser. No. 134,229, April 15, 1971, Pat. No. 3,728,771. This application Nov. 20, 1972, Ser. No. 308,247
Int. Cl. B23q *17/00*
U.S. Cl. 29—407 **8 Claims**



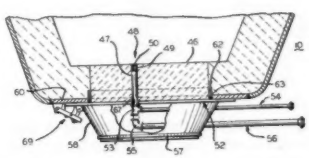
Method and apparatus for swaging one or more ferrules on the periphery a cylindrical member such as a tube and for testing the integrity of the grip by the ferrules on the tube following a swaging operation. The apparatus shown in the drawings includes power actuated camming means for engaging the ferrules and forcing them radially inwardly into engagement with the tube while means cooperate therewith to prevent longitudinal movement of the ferrules. Additionally, testing means are provided for testing the integrity of the swaging operation including means for applying a predetermined longitudinally directed force against an end of the tube while the ferrules are held to determine whether or not the tube will move relative to the ferrules.

3,810,297

METHOD OF TRANSFORMING A TOP-BLOWN STEEL CONVERTER VESSEL TO A BOTTOM-BLOWN TYPE

Howard M. Fisher, New Castle, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Filed June 12, 1972, Ser. No. 261,823
Int. Cl. B23p *11/00*
U.S. Cl. 29—428 **19 Claims**



An existing basic oxygen type top-blown steel converter vessel is transformed into a bottom-blown type where gases and finely divided materials may be blown into the vessel through tuyeres in its side w all and in its bottom. The existing trunnion shafts on which the existing vessel is supported for tilting are bored at the installation site to provide a plurality of passageways for conducting finely divided materials, gases and

cooling water to the various tuyeres and to the trunnion ring which supports the vessel, respectively. Special multipurpose rotary joints are used to connect the tiltable vessel to sources of the gases and finely divided materials.

3,810,298

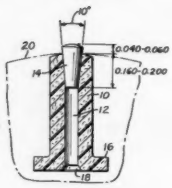
METHOD OF MANUFACTURING TIRE STUD

Rolf J. Cantz, Berlin, Germany, assignor to Kennametal Inc., Latrobe, Pa.

Division of Ser. No. 85,097, Oct. 29, 1970, Pat. No. 3,757,841. This application Nov. 21, 1972, Ser. No. 308,400

Int. Cl. B23p *19/02*

U.S. Cl. 29—525 **9 Claims**



A tire stud having a body with a hard wear resistant pin mounted an axial bore in the body thereof and protruding from one end of the body. The body has a head on the other end and is mounted in the tread of a tire head end foremost with the end of the stud from which the pin protrudes about at the level of the surface of the tire tread or projecting slightly therefrom. The stud according to the present invention is particularly characterized in that the pin moves axially into the stud body as the stud wears thereby controlling the amount of the pin of the stud which protrudes from the end of the stud body.

3,810,299

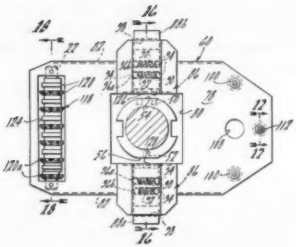
MACHINE TOOL WITH AUTOMATIC TOOL CHANGING MECHANISM

Richard A. Jerue, Birmingham, Mich., assignor to Devlieg Machine Company, Royal Oak, Mich.

Division of Ser. No. 30,630, April 22, 1970. This application Apr. 11, 1972, Ser. No. 242,957

Int. Cl. B23q *3/157*

U.S. Cl. 29—568 **8 Claims**



An automatic tool changing machine tool in which tools are selected from a tool storage device and transported to a position adjacent the drive spindle of the machine. From this position, a selected tool is inserted automatically in the drive spindle of the machine when it is ready to be used. The tools are coupled to pallets or carriers having handles which are engaged by various tool gripping elements in transporting the tool from the storage device to the spindle. The carriers also serve to mount coding for identifying the tool and conveying certain dimensional characteristics of the tool. Each carrier remains with its tool at all times and is only rotationally uncoupled from its tool after the tool has been inserted in the drive spindle.

3,810,300

ELECTRICAL CIRCUIT ASSEMBLIES

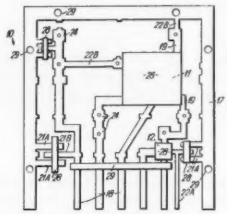
Harold Hulmes, Cheadle, and John Robert Pickin, Alderley Edge, both of England, assignors to Ferranti Limited, Lancashire, England

Continuation of Ser. No. 36,760, May 13, 1970, abandoned. This application July 21, 1972. Ser. No. 273,994

Claims priority, application Great Britain, May 20, 1969, 25693/69

Int. Cl. B01j *17/00*

U.S. Cl. 29—574 **18 Claims**



An electrical circuit assembly having a plurality of components and including at least one semiconductor device is formed, without employing a printed circuit board as is conventional with such arrangements, by mounting the semiconductor device on a lead frame, encapsulating the semiconductor device to form together with conductors associated with the semiconductor device a unitary construction, and providing a completed assembly of sufficient strength, after all the conductors of the lead frame have been rendered electrically discrete, by connecting the remainder of the assembly to the unitary construction and/or by encapsulating at least another part of the assembly; it being possible thereby also to test the different components either individually or in appropriate combinations during the manufacture of the assembly.

3,810,301

METHOD FOR MAKING AN INTEGRATED CIRCUIT APPARATUS

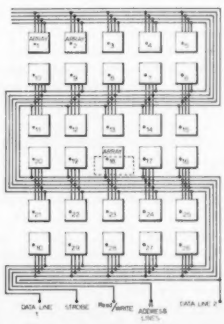
Robert C. Cook, Pierrefonds, Quebec, Canada, assignor to Centre de Recherche Industrielle du Quebue, Ste.-Foy, Quebec, Canada

Filed Aug. 31, 1972, Ser. No. 285,496

Claims priority, application Canada, July 28, 1972, 148232

Int. Cl. H01l *17/00*

U.S. Cl. 29—593 **7 Claims**



The method consists in subdividing an entire substrate into many independent and identical circuit arrays with each array

containing an identical programmable section, in programming the first array to respond to a certain set of electrical impulses, in testing the array for electrical function: if the array is good, proceeding with the programming and testing of the programmable section of the second array using another set of electrical impulses; if the array is faulty, proceeding with the programming and testing of the programmable section of the second array with the same set of electrical impulses used for the previous faulty array; then, repeating the above programming and testing steps for the remaining circuit arrays of the substrate using different sets of electrical impulses; and then establishing connection between the system connect lines of each array.

3,810,302

METHOD OF MANUFACTURING A WAVE-GUIDE

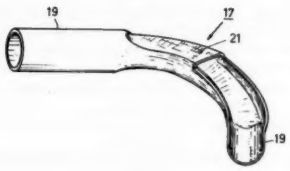
Godefridus Henricus Broers, and Johannes Van Esdonk, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 6, 1972, Ser. No. 312,688

Claims priority, application Netherlands, Dec. 9, 1971, 7116881

Int. Cl. H01p *1/00*

U.S. Cl. 29—600 **5 Claims**



A method of manufacturing a flat waveguide in which a hollow core of a soft metal is introduced into a steel tube, this assembly is then provided with two parallel flat faces by flattening the tube with the core on two sides, after which the core is removed by etching. By using a hollow core, elongation, contraction and tearing of the wall of the tube is prevented. The flat tube obtained by the method according to the invention has a smooth and regular inner surface and a uniform wall thickness.

3,810,303

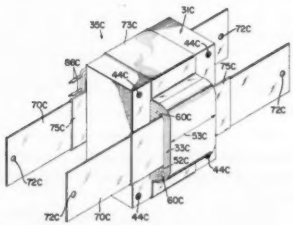
METHOD OF MAKING ELECTRICAL TRANSFORMER MEANS

John Hoell, 3959 Glencross, Cincinnati, Ohio

Division of Ser. No. 839,124, May 15, 1969, abandoned. This application July 23, 1971, Ser. No. 165,730

Int. Cl. H01f *7/06*

U.S. Cl. 29—605 **10 Claims**



This disclosure relates to improved electrical transformer means which has heat transfer surface means for transferring heat outwardly from within electrical coil means of such transformer means to thereby provide optimum electrical performance and to an improved method of making such transformer means and associated coil means.

3,810,304

METHOD OF PRODUCING THIN, FLEXIBLE HEATING ELEMENTS

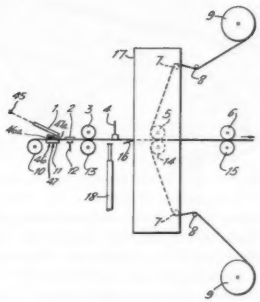
Paulus Heibye, and Rolf Heibye, both of Annerudjordet 4, 1370-Asker, Norway

Filed Oct. 3, 1969, Ser. No. 863,555

Claims priority, application Norway, Oct. 7, 1968, 3958/68

Int. Cl. H05b *3/00*

U.S. Cl. 29—611 **7 Claims**



A method for producing thin flexible heating elements comprising a resistance foil inserted between plastic sheets. A pair of plastic sheets are fed between a pair of welding rollers with a web of resistance foil fed therebetween. A heating chamber encloses the welding rollers and a portion of the plastic sheets upstream of the welding rollers and air is circulated through this chamber to pre-heat the plastic sheets to approximately welding temperature before the sheets reach the welding rollers.

3,810,305

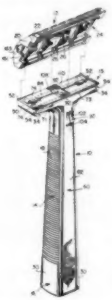
BLADE UNIT

Roger L. Perry, Lynnfield Center, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Apr. 27, 1972, Ser. No. 248,304

Int. Cl. B26b *21/54, 21/06*

U.S. Cl. 30—32 **8 Claims**



A safety razor blade unit is constructed for use with a safety razor handle having a head portion which is of fixed size and shape and which includes movable latch means. The blade unit comprises a frame and blade means secured in the frame. The frame defines a recess of the above-mentioned fixed size

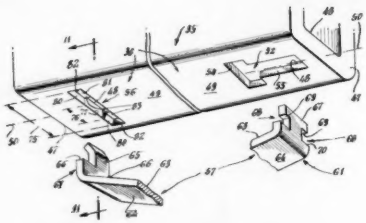
and shape for receiving the handle's head portion therein. The blade unit also comprises latch structure disposed to be engagable with the handle latch means when the handle head portion is so received in the blade unit recess.

3,810,306

SHAVER CUTTER HEAD

David R. Locke, Bridgeport, Conn., assignor to Sperry Rand Corporation, Bridgeport, Conn.

Filed Jan. 11, 1973, Ser. No. 322,760
Int. Cl. B26b *19/02, 19/04*
U.S. Cl. 30—43.92 **13 Claims**



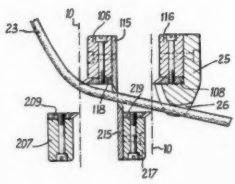
An improved inner cutter for a shaver of the type which includes a cutter head having an outer cutter, an inner cutter, and a spring having opposite end portions which are adapted to be detachably connected to the inner cutter for reciprocating the inner cutter within the outer cutter. The spring is adapted to be urged from a relaxed state to a compressed state. The inner and outer cutters each include a hair shearing edge, the hair shearing edge of the inner cutter being urged, by means of the compressed spring, to cooperate with the hair shearing edge of the outer cutter for shearing hair as the inner cutter is reciprocated within the outer cutter. To promote ease of assembly of the inner cutter and spring, a wall of the improved inner cutter is provided with spaced apertures, each of which is dimensioned to loosely receive therein one of the end portions of the spring. In addition, a surface of the inner cutter wall is provided with a recess having convergent walls. The recess is dimensioned to wedge one of the spring end portions within the recess when the spring is in its compressed state. The spring is thus firmly connected to the inner cutter when reciprocating the inner cutter within the outer cutter.

3,810,307

WIRE CUTTING AND STRIPPING PLIERS

Emile R. Mongredien, Epinay-sur-Seine, France, assignor to La Telemecanique Electrique, Hauts-de-Seine, France

Filed Jan. 19, 1973, Ser. No. 325,221
Claims priority, application France, Feb. 3, 1972, 72.03619
Int. Cl. H02g *1/12*
U.S. Cl. 30—90.1 **9 Claims**



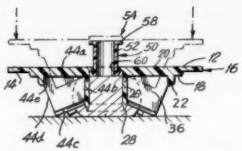
Pliers for cutting and stripping wire with an insulating sheath comprise two handles each of which extend beyond the pivot of the pliers as two separated extensions, one extension of each handle being disposed between the two extensions of the other handle. Opposed cutting blades are fitted to adjacent lateral faces of the two central extensions, which blades have matching indentations in which the whole sheathed wire fits. The frontal faces of the extensions parallel to the pivotal axis of the pliers carry opposed pairs of stripping blades whose cutting edges have indentations matching the dimensions of the wire core. As the pliers are closed a wire is first cut through by the cutting blades and then the insulation on each cut end is stripped by the stripping blades.

3,810,308

RADISH PRESS

Albert Stubbmann, 699 Front St., Franklin Lakes, N.J.

Filed Sept. 18, 1972, Ser. No. 289,667
Int. Cl. B26b *3/04*
U.S. Cl. 30—130 **3 Claims**



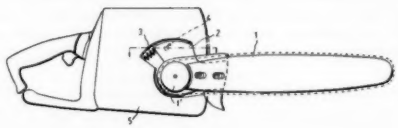
A radish press including a base having a first side with an opening extending through said base. Integral with said first side is a corer and means for forming petals on a radish. Means is provided which is movable in the base opening for ejecting a radish from the press after petals have been formed thereon.

3,810,309

PROTECTION ARRANGEMENT AT CHAIN MOTOR SAWS

Per Martin Wiklund, Mosstorpsvager 40, Taby, and Erik Borje Bang, Myntvagen 8, Vaxjo, both of Sweden

Filed Aug. 16, 1972, Ser. No. 281,240
Int. Cl. B27g *19/00*
U.S. Cl. 30—382 **3 Claims**



A chain saw operated by an internal combustion engine in which the forces of a "kick-back" or throw resulting when the nose of the rotating chain engages a work piece, is minimized by means of a safety device which absorbs movement of the saw blade about the drive wheel axis and in which a spring-urged detent means acts normal to the plane of the blade to hold the blade in a normal, operative position; including means for shorting out the internal combustion engine by relative movement between a housing and saw blade support section; and including means for reorienting the saw blade to a normal work position after the "kick-back" force diminishes.

3,810,310

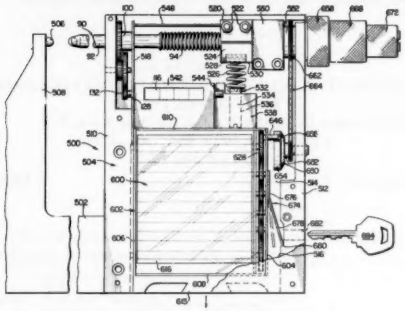
MICROMETER MEASURING DEVICES

Paul A. Morgan, Chicago, Ill., assignor to Century Wheels Inc., Lake Bluff, Ill.

Filed Mar. 27, 1972, Ser. No. 238,340
Int. Cl. G01b *3/18*
U.S. Cl. 33—166 **49 Claims**

A micrometer comprises a frame having a first reference means, a spindle mounted in the frame for axial movement and having a threaded section, a control nut extending par-

tially around a longitudinal portion of the threaded section of the spindle and having threads mating with those of the spindle, and means for positioning the control nut at a set longitudinal distance from the first reference means. Resilient force applying means acts transverse to the axis of the spindle to



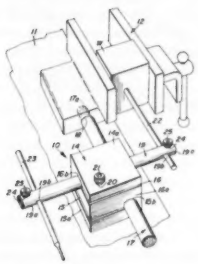
continuously urge the mating threads of the spindle and control nut into tight engagement with each other to maintain the roots and crests of the spindle in continuous alignment with the roots and crests of the control nut and provide for accurate readings of the micrometer.

3,810,311

LOCATING STOP FOR WORK TO BE MACHINED OR THE LIKE

Hans A. Pingel, 307 Souix Trl. (Lake in the Hills), Algonquin, Ill.

Filed June 15, 1972, Ser. No. 263,327
Int. Cl. G01b *3/22*
U.S. Cl. 33—169 R **11 Claims**



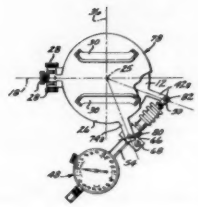
A work piece locating device particularly for vertical or horizontal milling machines. A clamping block slidably receives and clamps in adjusted position at right angles and offset from each other a mounting and a sliding rod. Slots are provided in the clamping block and one clamping screw secures both rods in the block. The second or sliding rod may protrude at each end from the block and is provided with a slot at each end to receive a locating or feeler rod or indicator gauge. A work piece is located in its desired position by being moved up to touch the end of the locating rod or to an indicator gauge adjusted position. There are cap screws at the ends of the sliding rod that clamp its slotted end portions up against the locating rods. The mounting rod is threaded at one end and may be threadedly received in a mounting hole. If mounting is in a T-slot of a machine work bed, than a T-nut and washer are employed to mount the rod on the work bed of a machine. The work piece locating device may have its mounting rod attached to a clamping vise mounted on a work bed. The jaws of the vise hold the work piece after it is positioned.

3,810,312

ALIGNMENT INSTRUMENT

William M. Carson, Santa Ana, Calif., assignor to Constructors Supply Company, Santa Fe Springs, Calif.

Filed Nov. 11, 1971, Ser. No. 197,879
Int. Cl. G01c *1/00*
U.S. Cl. 33—227 **5 Claims**



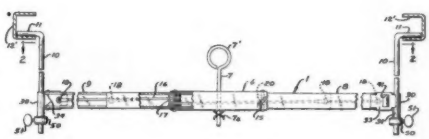
In an alignment instrument of the type in which a support or fixed instrument portion pivotally mounts a movable instrument portion, which may be a telescope, laser tube or the like, the movable portion is swingable through an arc from a reference axis to a second axis in alignment with a point of interest. A device capable of responding to the accompanying change in linear distance between the fixed and movable instrument portions is mounted to such portions and undergoes relative linear movement as the movable portion undergoes angular movement. According to this invention, the mountings at the ends of the device are pivotable and are located equidistant from the pivot axis of the movable portion. This arrangement minimizes the discrepancy inherent in measuring relative angular movement between the instrument portions by measuring the attendant change in linear distance between them.

3,810,313

VEHICLE FRAME GAUGE

John R. Hicks, Milwaukee, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed July 17, 1972, Ser. No. 272,351
Int. Cl. G01b *3/14*
U.S. Cl. 33—288 **6 Claims**



A vehicle frame gauge for indicating the degree of misalignment and distress of the alignment of a vehicle frame including a self-centering indicator which is mounted on a horizontal bar. The bar is hung beneath the vehicle frame by means of a pair of hanger rods which interengage with the frame at various selected locations thereof. The rods are coupled to the horizontal bar by an improved spring and collar mechanism which simplify the gauging procedure. In practice, a plurality of gauges are attached to the vehicle when checking alignment of a frame.

3,810,314

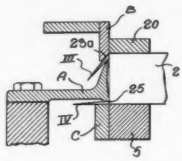
APPARATUS FOR TUCKING AND FOLDING

Andrew W. Anderson, West Caldwell, N.J., assignor to Scandia Packaging Machinery Company, North Arlington, N.J.

Continuation of Ser. No. 858,370, Sept. 16, 1969, abandoned. This application July 29, 1971, Ser. No. 167,510

Int. Cl. B65b *11/42, 49/04*

U.S. Cl. 53—378 **9 Claims**



An assembly for tucking and folding a wrapper extension section which projects outwardly from the edge along at least two contiguous sides of an article. The assembly includes a tucker blade means located along a path of travel for the article to form a tuck portion in the extension section along at least a first edge of the article. A straight edge section disposed on the tucker blade member is used to hold the tuck portion against the side of the article as it moves along the path. A first folder member located along the path is used to crease an overfold portion of the extension section along a second edge the article and over the tuck portion. The straight edge section is effective to prevent the tuck portion from changing position beneath the overfold portion. A straight edge section is disposed at a height along the path to be contiguous to the second edge of the article along which the overfold portion is being bent. An inclined edge acts to crease the overfold portion along the second edge of the article while the straight edge section performs its function. The assembly may be used in combination with any packaging machine to effect the desired results.

3,810,315

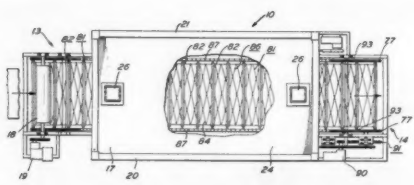
APPARATUS FOR TREATING MATERIALS

Myron T. Fleming, Maple Glen, Pa., assignor to Thermal Exchange Systems, Inc., Morton, Pa.

Filed Apr. 19, 1972, Ser. No. 245,327

Int. Cl. F26b *13/00*

U.S. Cl. 34—160 **18 Claims**



Material treating apparatus comprising a housing and means for conveying material through the housing in a substantially untensioned condition. Agitating and drying means are provided for moving the material rapidly between limiting barriers disposed on opposite sides of the material, the agitating and drying means comprising high velocity air jets directed through these barriers by means of nozzles located on opposite sides of the material. The air blasts from the nozzles, which may be mounted for oscillation, continuously thrust successive portions of the material into and out of abutment with the limiting barriers. The limiting barriers comprise foraminous aprons which are mounted for continuous movement by means of conventional roller chains. The aprons are substantially open and are made of interwoven strands of wire which allow the air jets to pass therethrough but which limit movement of the material. The aprons form a part of a transport means which includes two endless conveyors disposed one above the other. The treated material, during its movement through the dryer, is disposed between the top run of lower conveyor and the bottom run of the upper conveyor.

3,810,316

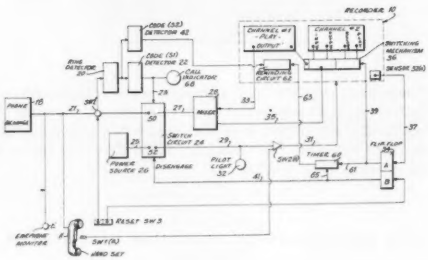
STUDENT TEACHING SYSTEM AND THE LIKE AND RELATED METHOD

Bachir Lahlou, 26 E. 91st St., Apt. 3D, New York, N.Y.

Filed July 3, 1972, Ser. No. 268,594

Int. Cl. G09b *7/00*

U.S. Cl. 35—8 A **6 Claims**



A student teaching system and related method are provided by means of which a student located at a remote station may initiate the transmission of a series of questions or the like to which he may reply. The student's replies are recorded at the location from which the questions are initially transmitted and provision is made for further recording corrections so that when a lesson is complete both the questions and corrections may be transmitted to the student. According to one embodiment of the invention, the student may be provided with a telephone having a special adapter which enables him to communicate through a telephone exchange with a central station having a tape recorder provided with a series of questions or other lesson objects requiring student responses and further provided with a recorder to record the student responses as well as the corrections. A signal device may be provided by means of which the student may signal for operator intercession or by means of which the student can reset the position of the series of lesson objects requiring student responses.

3,810,317

DISPLAY SYSTEMS

Harold Matthew Rosenbaum, Essex, and Francis Duerdin, Herts, both of England, assignors to The Marconi Company Limited, Chelmsford, Essex, England

Filed Sept. 5, 1972, Ser. No. 286,348

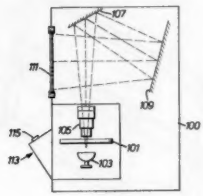
Claims priority, application Great Britain, Sept. 7, 1971, 41587/71

Int. Cl. G09b *7/00*

U.S. Cl. 35—9 A **20 Claims**

A display system for use as a teaching aid having support means for supporting a slide having an array of micro-images thereon, a display screen, means for projecting onto the display screen any one of the micro-images from the array and drive means for displacing the support means relative to the projector to enable selection of the micro-image to be displayed. Each micro-image further includes position informa-

tion relating to the next micro-image to be displayed and this may be modified under control of an operator to produce the

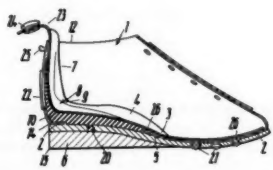


modified position information in accordance with which the next image is selected for display.

3,810,318
SHOE, ESPECIALLY FOR AIDING CHILDREN IN LEARNING TO WALK

Roland Epstein, Asperg, Germany, assignor to Salamander Aktiengesellschaft, Kornwestheim, Germany

Filed Aug. 3, 1972, Ser. No. 277,649
Claims priority, application Germany, Aug. 5, 1971, 2139151
Int. Cl. A43b *23/08*
U.S. Cl. 36—2.5 F **38 Claims**



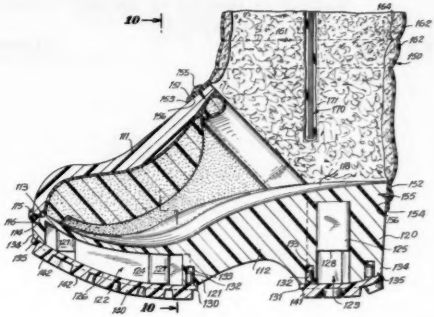
A shoe, especially for aiding children in learning to walk, which includes an inner sole having an extension extending upwardly and forming the heel section, which latter together with said inner sole forms a coherent, preferably single piece structural element.

3,810,319
CLOG CONSTRUCTION

Joseph P. Famolare, Jr., Florence, Italy, assignor to Famolare, Inc., New York, N.Y.

Continuation-in-part of Ser. Nos. 268,728, July 3, 1972, Pat. No. 3,742,625, and Ser. No. 231,505, March 3, 1972, Pat. No. 3,729,840. This application Apr. 30, 1973, Ser. No. 355,941
Int. Cl. A43b *3/12*
U.S. Cl. 36—11.5 **9 Claims**

A comfortable, clog construction having a specially shaped rigid upper and a rigid lower connected together along a mating circumferential step is disclosed herein. The clog is held comfortably and snugly to the foot of the wearer by a unique arrangement including a foam lining which cooperates with the rigid upper and lower to define a "keyhole" opening into which the skewed foot of the user may be inserted and then rotated to lock the foot securely in the clog. The clog is of plastic and provides a new modular shoe construction having the appearance of so-called "Dutch" shoes into which may be

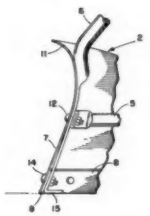


added a legging to provide a new and improved boot construction.

3,810,320
SNOW SHOVEL

Howard G. Siebert, 3004 Fairmount Blvd., Cleveland Heights, Ohio

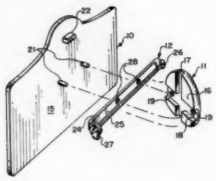
Filed Mar. 19, 1973, Ser. No. 342,758
Int. Cl. E01h *5/00*
U.S. Cl. 37—46 **5 Claims**



A snow shovel of the push or plow type having a U-shaped handle by which the V-shaped blade is pushed along a sidewalk or driveway to clear a path without lifting of the snow, said shovel being characterized in that the V-shaped blade comprises a pair of blade sections having their upwardly and rearwardly inclined leading ends detachably secured together, and a brace extending horizontally across the trailing ends of the blade sections and detachably secured thereto, and in that the U-shaped handle comprises upwardly and rearwardly inclined legs having their lower end portions detachably secured to the trailing ends of the blade sections and having their upper end portions detachably secured to the legs of a U-shaped handle member on the cross bar of which pushing force is applied to move the blade along the sidewalk or driveway which is to be cleared of snow. The snow shovel herein, by reason of the aforesaid detachable connections of the parts thereof, may be economically shipped in disassembled condition in a compact package.

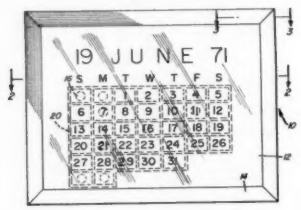
The snow shovel herein is further characterized in that the extremities of the lower legs of the handle are bent to lie in the same horizontal plane as the bottom V-shaped edge of the blade thus to form skids to facilitate movement of the blade along the snow covered surface and additionally to form fulcrums for upward tilting of the blade when deep or heavy snow is encountered or when an irregularity is encountered in the sidewalk or driveway.

3,810,321
MOUNTING FOR IDENTIFICATION BADGE
Jack Y. Kiba, Chicago, Ill., assignor to Magenta Corporation, Chicago, Ill.
Filed Oct. 18, 1972, Ser. No. 298,574
Int. Cl. A44c *3/00*
U.S. Cl. 40—1.5 **5 Claims**



A backup plate is secured to the back of a badge body with cement. The backup plate has a horizontal and a vertical slot therein. Alternatively, the base of a pin type badge mounting is held in the horizontal slot or the base of an alligator clip mounting is held in the vertical slot.

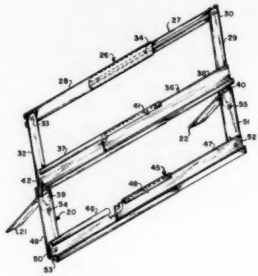
3,810,322
CALENDAR DISPLAY DEVICE
Ellis Ray Ritchie, P.O. Box 706, Whittiers, Ark. 99502
Filed Oct. 13, 1972, Ser. No. 297,350
Int. Cl. G04b *19/24*; **G09d** *3/12*
U.S. Cl. 40—107 **3 Claims**



A calendar display device comprising a housing, a multimonth calendar formed of a sheet of light-transmitting material extending between dispensing and take-up spools to display the appropriate month through an opening in the housing, a plurality of lamps positioned behind the calendar sheet for selectively illuminating individual days of the month, circuit means for sequentially energizing the lamps in a pattern corresponding to the calendar days, control means including means for automatically advancing the calendar sheet at the end of each month to display the calendar of the subsequent month and means for conditioning the circuit means for sequential energization of the lamps in a pattern corresponding to the arrangement of days of the newly displayed monthly calendar.

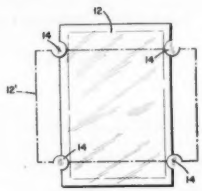
3,810,323
CONVERTIBLE BINGO CARD HOLDER
Bernice E. Lowe, 2910 Gunsmoke, Lot 18, San Antonio, Tex.
Filed Mar. 21, 1973, Ser. No. 343,245
Int. Cl. G09f *1/10*
U.S. Cl. 40—124 **6 Claims**

A collapsible folding rack for displaying a multiplicity of Bingo Cards. This card holder, in the folded configuration, fits into a carrying case which may be placed in a large lady's purse. In the extended, assembled configuration as many as



eight bingo cards may be displayed for viewing and playing the game.

3,810,324
MAT FOR MOUNTING PRINTS
Royal V. Hart, 5313 Riverdale Rd., Apt. 428, Riverdale, Md.
Filed Oct. 27, 1972, Ser. No. 301,297
Int. Cl. G09f *1/10*
U.S. Cl. 40—158 R **5 Claims**

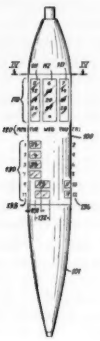


A mat is provided having inwardly directed tab means on each of the four corners of a square, the sides of the square measuring substantially the same as the width or narrower dimension of an elongated rectangular print which it is desired to mount. With this arrangement the print can be mounted with its longer dimension disposed either vertically or horizontally, by engaging its side edges under either the confronting vertical edges or the confronting horizontal edges of the four tab means, respectively.

3,810,325
MULTIYEAR CALENDAR
Franz-Josef Koper, Kiefernstrasse 7a, 437 Marl, Germany
Filed Apr. 17, 1972, Ser. No. 244,403
Int. Cl. G09d *3/06*
U.S. Cl. 40—335 **2 Claims**

A multiyear calendar has a barrel formed on a ballpoint pen or the like and provided with date indicia in the form of a calendar array numbered from 1–31 and extending around the cylindrical body of the barrel in seven columns. Axially offset from this array are six circumferential extending and axially spaced rows each subdivided also into seven equal spaces at least five of which are provided with year indicia. A sleeve rotatable on the barrel is provided with windows registrable with the columns of the date array, and day indicia under each window. Below the day indicia are formed 12 further year windows each associated with month indicia. These windows are arranged in six rows registrable with the year indicia with two windows per row and each row labeled for two consecutive months of the year. The month windows for the months of

January–August are spaced apart by a circumferential distance equal to three day columns, the month windows for

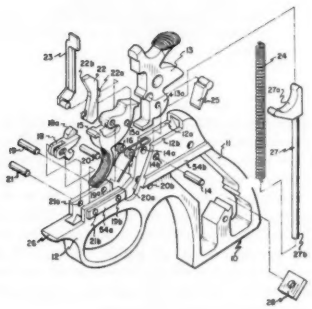


the months of September–December are spaced only two apart.

3,810,326
CONSTRUCTION FOR REVOLVERS

Robert L. Hillberg, Cheshire, Conn., and Thomas J. Hartog, Ogden, Utah, assignors to Browning Arms Company, Morgan, Utah

Filed Mar. 1, 1973, Ser. No. 337,004
Int. Cl. F41c 1/00
U.S. Cl. 42—59 **7 Claims**

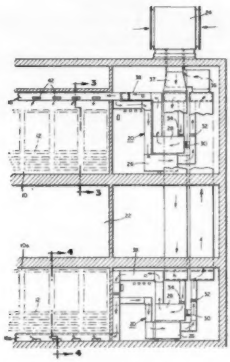


A revolver is constructed in two interlocking subassemblies, thereby avoiding the traditional side plate assembly techniques conventional in revolver construction. The first, or frame, subassembly is adapted to receive a cylinder and a crane so that the crane is checked by an internal (hidden) surface. The crane is secured by a pin inserted from inside, thereby avoiding dissimilar surface finishes at the front of the revolver. The second, or trigger guard, subassembly carries the entire firing and indexing mechanisms of the revolver in preassembled condition. The two subassemblies are joined and held in place by a single pin. Each subassembly carries structures which interlock when the revolver is assembled to prevent dry-firing when the cylinder is unlatched and to prevent opening of the cylinder when either the hammer is cocked or the trigger is pulled.

3,810,327
ATMOSPHERE CONTROL SYSTEM FOR GROWING MUSHROOMS AND THE LIKE

Joseph A. Giansante, 720 Willow St., Pottstown, Pa.

Filed Dec. 29, 1972, Ser. No. 319,229
Int. Cl. A01q 1/04
U.S. Cl. 47—1.1 **22 Claims**

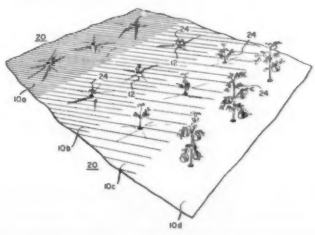


System for controlling the environment in a mushroom growing room including three novel and unique sub-systems, namely (1) a carbon dioxide concentration sensing device and control means responsive thereto for controlling the proportions of recirculated air and fresh air continuously introduced into the mushroom growing room so as to maintain the carbon dioxide level therein at 0.1 percent or less, and for doing so separately in a plurality of such rooms; (2) a proportionally controlled heat exchanger in which exhaust air from one or more mushroom growing rooms or chambers is heat exchanged with incoming fresh air for ventilation of such chambers using a heat transfer member, such as a large metal wheel with a relatively large amount of surface area, which is rotated at a speed proportional to the temperature difference between the fresh air after passing through the exchanger and a pre-selected desired temperature; and (3) a temperature-humidity control system which maintains optimum conditions in a growing room continuously with a high level of accuracy.

3,810,328
MULCH SHEET

Robert C. Bryan, Jr., Diamond Bar, Calif., and Joseph F. Price, Stone Mountain, Ga., assignors to Ludlow Corporation, Needham Heights, Mass.

Filed Jan. 11, 1973, Ser. No. 322,637
Int. Cl. A01g 7/00
U.S. Cl. 47—9 **9 Claims**



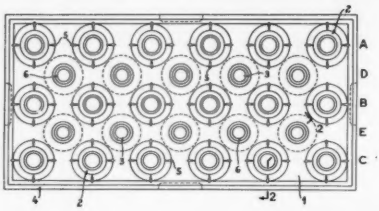
An improved mulch in sheet form which is adapted to hug the earth and consequently avoid interference with automated

agricultural apparatus. The mulch is formed with an extensible kraft paper facing. The paper is selected to fade and become more reflective of the sun's rays as the growing season progresses. The disclosed crepe-backed construction also contributes a multi-directional strength characteristic to the sheet and allows use of a relatively thin plast coating.

3,810,329
CELLULAR TRAYS FOR CULTIVATING AND DISPLAYING PLANTS

Jacques Lecuru, and Jean Cassa, both of 2 Gillocourt, Orrouy, Oise, France

Filed June 6, 1972, Ser. No. 260,256
Claims priority, application France, July 2, 1971, 71.24763
Int. Cl. A01g *9/02*
U.S. Cl. 47—34.13 **4 Claims**

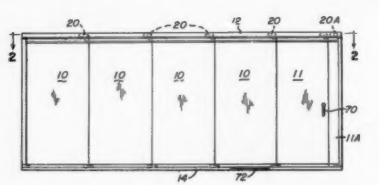


A cellular tray for receiving a plurality of rows of flower plants or the like for cultivating or displaying them comprises alternate frustoconical cavities for receiving said plants in pots or the like and frustoconical holes constituting respective ventilating shafts for aerating the undersides of the leaves of the plants received therein, each hole being disposed at the center of a circle, along which the axes of four pot-receiving cavities are disposed with a 90° spacing, each cavity having its minor base opening at the bottom face of the tray and its major base opening at the top face of the tray. The holes have opposite tapers and comprise at their upper end a collar projecting from the top face of the tray. This tray further comprises a projecting marginal portion. Grooves formed in the lateral walls of the cavities facilitate the draining of water through the cavities alone.

3,810,330
MOVABLE PANEL SYSTEM

Earl N. Daggy, Richmond, Ind., assignor to American Standard Inc., New York, N.Y.

Filed Sept. 5, 1972, Ser. No. 286,562
Int. Cl. E05d *15/58*
U.S. Cl. 49—127 **5 Claims**

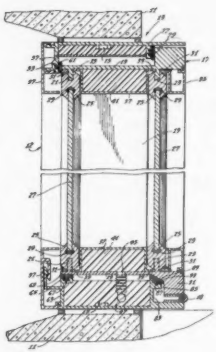


A system of floor supported panels or partitions includes a series of individual rigid panels which are supported from movement between ceiling and floor tracks, while the weights of the panels are supported on the floor tracks. A unique stacking system is provided which permits the panels to be stacked in parallel side-by-side relation without the use of special stacking tracks. A combined panel pivot and lock is provided by the upper trail shoe on each panel in the ceiling track, while the lower track shoe permits the panel to pivot on a vertical axis including the upper shoe while resisting longitudinal movement of the panel along the track. A lower leading shoe is especially adapted to leave the floor track when the panel is swung into its storage position essentially normal to the tracks. As each panel is pivoted, as described, its upper trail shoe locks with the corresponding shoe of the preceding panel. In the case of the first panel, its shoe locks with a fixed dummy shoe in the ceiling track. In this manner, the upper pivotal end of each panel is positively locked during the times that the panel is being moved into storage position, and while it is in storage.

3,810,331
PIVOTALLY MOUNTED HERMETICALLY SEALED WINDOW UNIT

Richard H. McCurdy, and Lawrence W. Connelly, both of Fairfax, Va., assignors to Siteleine, Inc., Fairfax, Va.

Continuation-in-part of Ser. No. 101,258, Dec. 24, 1970, abandoned. This application Nov. 30, 1971, Ser. No. 203,331
Int. Cl. E05d *7/00*
U.S. Cl. 49—401 **15 Claims**



A hermetically sealed dual light window unit in which, if desired, the volume between the lights is allowed to breathe. Each window is provided with structure for allowing the window to be tilted into the building so that the outer light may be cleaned, desiccant can be replaced, etc. In an installation comprising a plurality of such window units, all are ducted to a common manifold. The manifold is ported to the atmosphere to vent air pressure built up within the system to the atmosphere, and accept filtered, dehumidified air from the atmosphere when ambient atmospheric air pressure exceeds the internal air pressure within the system.

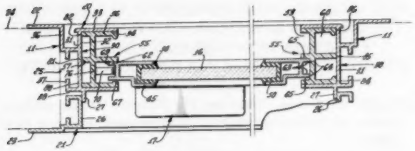
3,810,332
MULTIPURPOSE WEATHERSTRIP CONSTRUCTION

Abraham Grossman, 9339 Rhea Ave., Northridge, Calif.

Filed Nov. 8, 1971, Ser. No. 196,432
Int. Cl. E05d *13/02, 13/06, 15/18*
U.S. Cl. 49—421 **1 Claim**

A multipurpose weatherstrip construction for a slidable panel or window sash comprising a rigid vinyl weather seal member of double H-section received within a recess in a frame member and providing channels for edges of a panel member and a spring means on one side of the panel member for laterally biasing the insert members on each side of the panel member and panel member into weather sealing engagement with each other and with the associated frame members. A weather sealing member of extruded rigid vinyl material and

comprising outer and intermediate parallel spaced flanges of uniform width and a web means interconnecting said flanges, the outer flanges having inturned beads adapted to seal against a panel edge at one side thereof, said web means having a surface adapted to seal panel edges at the other side thereof, said plurality of flanges having sealing edge faces adapted to seal against said frame member, and said web means having spaced ports adapted to receive a latch bolt means to adjustably position the panel in the frame.

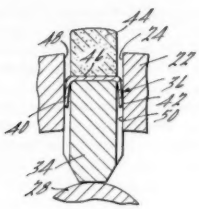


3,810,333

HONING TOOL

Robert H. Gillette, Pendelton, Ind., assignor to Micromatic Industries, Inc., Holland, Mich.

Filed Sept. 22, 1972, Ser. No. 291,279
Int. Cl. B24b *5/06*
U.S. Cl. 51—338 **20 Claims**



A honing tool incorporating improved means for mounting and retaining abrasive elements in the honing tool.

3,810,334

STEEL WOOL SWAB

Jonathan W. Povill, 1503 Bainum Dr., Topanga, Calif.

Filed Oct. 30, 1972, Ser. No. 302,077
Int. Cl. B24d *17/00*
U.S. Cl. 51—358 **1 Claim**

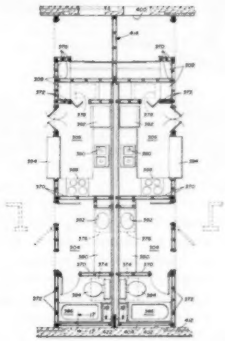
An abrading and polishing tool in the form of a swab with a wand having a head portion provided with barbs extending outwardly and rearwardly from the tip of the head with a wad of abrasive filamentous material such as steel wool, nylon or copper strands twisted or wound about the head portion and anchored thereto by the barbs, the handle portion being adapted for manual use or for insertion in a drill chuck.

3,810,335

FIRE BARRIER SYSTEM FOR MULTI-FAMILY DWELLINGS

Raymond L. McCrillis; Walter T. Fuller, both of Littleton; Richard H. Dixon, Lakewood, and John R. Oldani, Littleton, all of Colo., assignors to Marcor Housing Systems, Incorporated, Denver, Colo.

Division of Ser. No. 230,825, March 1, 1972, Pat. No. 3,757,477. This application May 3, 1973, Ser. No. 356,953
Int. Cl. E04b *2/74*
U.S. Cl. 52—79 **4 Claims**



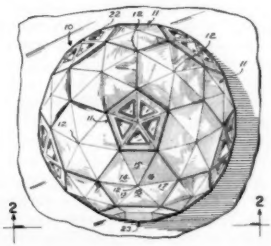
In a dwelling construction system, a multi-story, multi-family building comprises prestressed concrete pallets which are supported between load bearing walls to form the floors and the ceilings of individual dwellings. Each dwelling includes a service core comprising an enclosure formed on one of the pallets and complete mechanicals for the dwelling. The service cores are fabricated by mass production techniques and are subsequently transported to the building site for installation. In some instances the service core comprises a complete dwelling, in which case the enclosure of the service core may form the exterior walls and the roof of the dwelling.

3,810,336

GEODESIC PENTAGON AND HEXAGON STRUCTURE

Shoji Sadao, Boston, Mass., assignor to Fuller & Sadao, Incorporated, Cambridge, Mass.

Filed May 9, 1972, Ser. No. 251,803
Int. Cl. E04b *1/32*
U.S. Cl. 52—81 **5 Claims**



A geodesic-type dome structure having the structural elements connected in a pattern of great circle arcs and lesser cir-

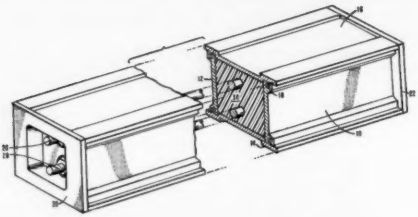
cle arcs in a three-way grid defining isosceles triangles and including hexagon and pentagon modules.

3,810,337

ELONGATED STRESSED STRUCTURAL MEMBER

Stephen LeRoy Pollard, 405 Holy Ave., Monrovia, Calif.

Filed Oct. 28, 1970, Ser. No. 84,801
Int. Cl. B32b *3/26*
U.S. Cl. 52—223 R **4 Claims**



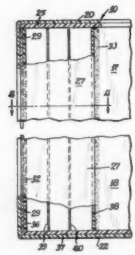
This patent describes a novel stressed structural member which comprises a composite of a lightweight void-containing core to which is bonded thin skin sheets on at least some of the lateral surfaces, said core having one or more reinforcing members embedded therein. This patent further describes a novel method of manufacturing a novel stressed structural member which comprises positioning thin skin sheets in a predetermined arrangement around one or more reinforcing members, forming a lightweight void-containing core around said reinforcing members which bonds to said members and said skin sheets, and applying stress to said composite. In a preferred embodiment of this invention, the novel stressed structural member comprises an elongated beam having four lateral sides and formed of a composite of a lightweight void-containing core to which is bonded on four sides thin skin sheets, said core having one or more reinforcing members embedded therein, and end cap members at each end of said beam.

3,810,338

METAL REINFORCED PLASTIC PANEL

Clarke K. Wolfert, Peoria, Ill., assignor to H C Products Co., Princeville, Ill.

Filed Aug. 3, 1972, Ser. No. 277,774
Int. Cl. E06b *7/08*
U.S. Cl. 52—475 **8 Claims**



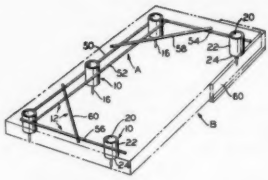
A metal reinforced plastic panel structure adapted to use in bifold doors and the like and wherein the metal reinforcement elements are selected and related to other structural parts of the panel to provide an increase of panel weight which is more advantageous than detrimental, and which materially increases the strength, durability and rigidity of the panel while also avoiding problems, such as warping or damage to panel parts, which could result from temperature changes encountered during shipment or use and the different temperature coefficients of expansion of the associated metal and plastic parts.

3,810,339

METHOD AND APPARATUS FOR FORMING CONSTRUCTION ELEMENT LOCATING AND MOUNTING VOIDS IN A POURED CONCRETE STRUCTURE

Dominic C. Russo, Warrensville Heights, Ohio, assignor to Russo Architectural Metals Incorporated, Bedford Heights, Ohio

Filed Sept. 5, 1972, Ser. No. 286,009
Int. Cl. E04f *13/04*
U.S. Cl. 52—700 **3 Claims**



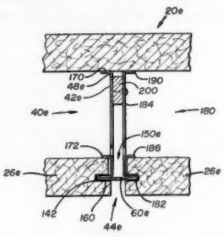
An assembly is provided which is comprised of a plurality of desirably spaced sleeves rigidly interconnected to a framework which may be oriented and suspended in a desired attitude within a concrete form by means of noncorrosive studs protruding from the base of each sleeve. When the concrete is then poured into the form, the framework and sleeves become an integral part thereof with the sleeves subsequently providing voids for mounting guardrails and the like.

3,810,340

INTEGRAL STUD AND BRACKET STANDARD

Nels Nelsson, Des Plaines, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Division of Ser. No. 79,580, Oct. 9, 1970, Pat. No. 3,712,015.
This application Sept. 12, 1972, Ser. No. 288,449
Int. Cl. E04b *2/32*
U.S. Cl. 52—729 **3 Claims**

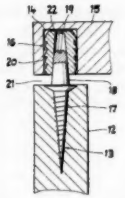


A stud and wall assembly constructed therewith for supporting shelf brackets and the like, the stud having as an integral part thereof, both a slotted flange for engaging shelf brackets, and as an extension of the flange, flat surfaces for engaging partition members which make up the wall. The slotted portion of the flange may be recessed within the stud or projected therefrom, so as to conceal or expose, respectively, the slotted portion. Additional bracket-supporting hooks can be extruded as part of the flange. The over-all cross-sectional configuration of most of the embodiments of the stud is an H-shaped configuration.

3,810,341
MULTIPART JOINING ELEMENT FOR BUTT AND CORNER JOINTS

Heinrich Holz, CH-8841 Egg/SZ, Switzerland

Filed June 10, 1971, Ser. No. 151,879
Claims priority, application Switzerland, June 12, 1970, 8760/70
Int. Cl. F16b 13/06, 2/00
U.S. Cl. 52—753 E 13 Claims

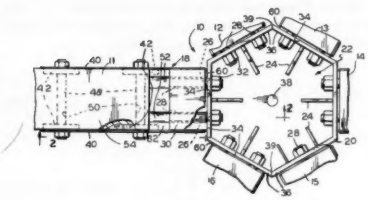


A joining or fastening element for use on butt and corner joints for furniture and cabinets of wood or like material, including a plug portion to be anchored in one of the members to be joined, and a sleeve to be anchored in the other member to be joined. One end of the plug portion terminates in a projecting conical configuration. The sleeve is flexible with respect to and serves as a seat for the projecting cone end of the plug portion.

3,810,342
DOME JOINT

Hollis C. Scott, Portland, Oreg., assignor to Western Wood Structures, Inc., Portland, Oreg.

Filed Dec. 26, 1972, Ser. No. 318,466
Int. Cl. E04b 1/32
U.S. Cl. 52—758 R 15 Claims



At both top and bottom of end portions of beams, welded steel plate connector assemblies having side straps are bolted to the beams, a bridge plate welded to the side straps and one or more threaded studs welded to the bridge plate and extending through and nuts tightened behind a facet plate of a separate polygonal hub assembly. The central hub assembly includes a polygonal tube and stiffening plates and gussets in the tube. A clearance between the connector assemblies and the central hub effects a joint where the beam remains in abutment with its facet of the hub for tension forces as well as compression forces. The beams have daps and/or kerfs, and also clearance grooves for the studs to permit the connectors to be slid from retracted positions to positions in which the studs extend through the bolt holes in the hub.

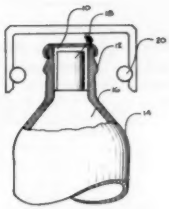
ERRATUM

For Class 53—378 see:
Patent No. 3,810,314

3,810,343
METHOD OF RENDERING PRESSURIZED BOTTLE NON-EXPLOSIVE

Manuel W. Palomo, 2530 Thorn Lodge Dr., Mississauga, Ontario, Canada

Filed June 14, 1972, Ser. No. 262,692
Int. Cl. B65b 1/04, 3/04
U.S. Cl. 53—37 1 Claim

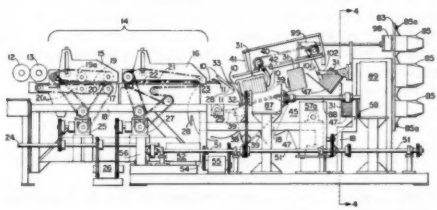


This invention relates to a method of bottling pressurized liquid whereby the explosive potential of the capped bottle is eliminated comprising the steps of first filling a bottle to its neck with liquid, then introducing an expandable material in the neck of the bottle to partially occupy the space within said neck, then capping the bottle and finally permitting the said material to expand to completely fill the air space within the neck of the bottle.

3,810,344
MACHINE FOR PACKAGING FLEXIBLE ARTICLES

Stephen F. Evans, St. Bernard, and Eugene R. Sorensen, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 29, 1972, Ser. No. 239,172
Int. Cl. B65b 63/02
U.S. Cl. 53—124 D 16 Claims



A machine for packaging flexible articles, e.g. disposable diapers, which includes mechanism for forming a stack containing a predetermined number of articles including devices for moving the stack and pushing it into a suitable container. The machine includes an infeed conveyor section used to convey and compress the articles whereupon they are ultimately delivered into successive slots of a pad wheel. The articles are stripped from the slots and simultaneously formed into stacks containing a predetermined number of articles. A pusher element and a stack controller arm are provided to convey each stack into the pocket of an intermittently rotating stack wheel. The stack wheel moves successive stacks into alignment with a support plate whereupon a transfer pusher moves each successive stack fully onto the support plate. A tamper plate is provided to exert a small amount of compressive force on the stack prior to lateral movement of the stack between the support plate and a ceiling plate which is adjacent the tamper plate. A reciprocating side pusher is used to move the stack laterally into position for ultimate movement into a container. A container wheel is intermittently rotated alongside the sup-

port plate. Container supporting nozzles project from one side of the container wheel, there being a container telescoped over each of the nozzles. When a nozzle containing an empty container is moved into contiguous relationship with the article stacks, a container load pusher is actuated to move the stacks into the container whereupon on further indexing of the container wheel, the filled container is removed by a full container pusher.

3,810,345

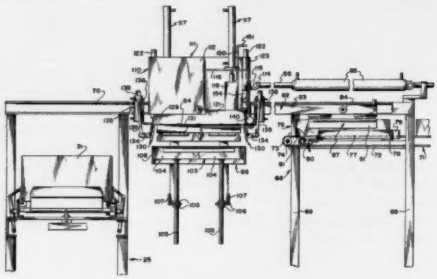
BOX CAPPING MACHINE

Everett C. Lemmond, Rt. 2, and James W. Edwards, 1316-15th Ave., S.E., both of Decatur, Ala.

Filed Nov. 13, 1972, Ser. No. 306,245

Int. Cl. B65b *7/28*

U.S. Cl. 53—306 **15 Claims**



Apparatus for automatically removing box lids from a first conveyor and placing such lids on boxes carried by a second conveyor. The apparatus includes a carriage having first and second lid pickup devices in which the first lid pickup device removes a box lid from a lid holding station on the first conveyor and transfers the lid to a ready pickup station. Simultaneously the second pickup mechanism removes a box lid from the ready pickup station and places such lid on a box located at a box holding station on the second conveyor. The apparatus includes electrical and fluid systems arranged in a manner that the lids will be placed on the boxes or containers automatically without an operator being present after the apparatus has been started.

3,810,346

METHOD FOR REMOVAL OF OIL AND WATER FROM COMPRESSED AIR

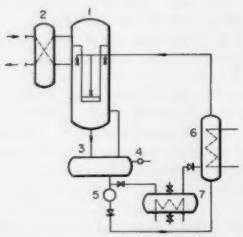
Eiichi Uratani, Tokyo, Japan, assignor to Sumida Equipment Industries, Inc., Tokyo, Japan

Filed Sept. 1, 1972, Ser. No. 285,871

Claims priority, application Japan, Mar. 7, 1972, 47-22832

Int. Cl. B01d *53/02*; **F25b** *47/00*

U.S. Cl. 55—29 **5 Claims**



Compressed air contaminated with water vapor and a mist of oil droplets is purified by spraying into the air a cold, liquid refrigerant (CCl_3F, $CHCl_2F$, $C_2Cl_3F_3$, $C_2Cl_2F_4$) which cools the air below its dew point without itself evaporating and absorbs the oil. The precipitating mixture of oil-bearing solvent and water is permitted to settle. An upper aqueous layer of water is removed by overflow, and the lower layer of solvent containing oil is recycled until it contains too much oil, whereupon it is separated from the oil by distillation.

3,810,347

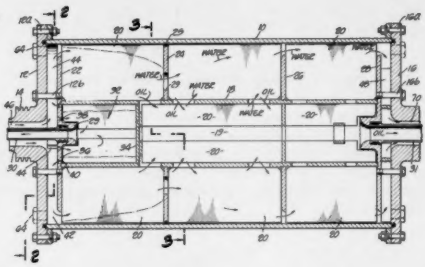
CENTRIFUGAL SEPARATOR FOR THREE PHASE MIXTURE

Ernest Orval Kartinen, Long Beach, Calif., assignor to Signal Oil and Gas Company, Long Beach, Calif.

Filed Jan. 16, 1973, Ser. No. 324,172

Int. Cl. B01d *19/00*

U.S. Cl. 55—45 **11 Claims**



A centrifugal separator for separating a mixture of higher and lower density immiscible fluids with means for separating a third gaseous phase from said fluids is disclosed.

3,810,348

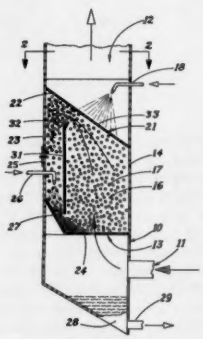
SCRUBBER ARRANGEMENT

Thomas W. Byers; Francis E. Dahlem; Roy D. Ireland, Jr., and Mohiuddin Pasha, all of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Jan. 7, 1972, Ser. No. 216,169

Int. Cl. B01f *3/04*

U.S. Cl. 55—91 **24 Claims**



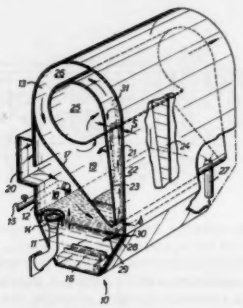
An arrangement for mutual contact of fluids wherein the fluids pass through a contact zone, and fluid contact elements are continuously cycled between the contact zone and an element treating zone where they are treated with a treating fluid and forced from the element treating zone back into the contact zone.

3,810,349

APPARATUS FOR PUTTING A GAS IN CONTACT WITH A LIQUID

Albert Rebours, Gbatou, France, assignor to Prat Daniel Poelman, Courbevoie, France

Filed Apr. 12, 1971, Ser. No. 133,097
Claims priority, application France, Apr. 24, 1970, 70.14993; Oct. 23, 1970, 70.38292
Int. Cl. B01d 47/02
U.S. Cl. 55—248 2 Claims



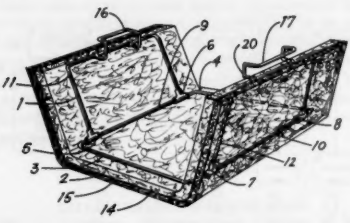
An apparatus for putting a gas into contact with a liquid, especially for separating solid or liquid particles in suspension in said gas or for eliminating certain gaseous constituents, said apparatus comprising a space in the form of a diffuser adapted to effect intimate mixing of the gas and liquid by means of the formation of a turbulent and dense suspension of drops forming a kind of semi-stationary fluidized bed. The gas and liquid pass together into the bottom of the diffuser which has the form of a divergent conduit in which is created a closed circulation of liquid effecting a continuous renewal of the bed, the impurities of the gas being treated during this circulation by physical collection with or without chemical reaction, followed by a centrifugal action which separates the gas from the drops of liquid, the liquid thus recovered being wholly or partly re-cycled.

3,810,350

U-SHAPED FLUID TREATING FILTER

Howard O. Scholl, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Apr. 24, 1972, Ser. No. 246,780
Int. Cl. B01d 27/00
U.S. Cl. 55—487 8 Claims



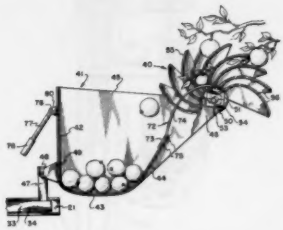
An improved air filter of U-shaped configuration including a wire frame of generally U-shaped configuration and a mat of flexible filter material substantially coextensive with the wire frame, the wire frame including pivot means at the juncture of the sides with the base of the U-shaped frame to allow collapsing of the filter to a flat package, the filter including hook means for removably mounting of the filter in an air processing unit.

3,810,351

MECHANICAL FRUIT PICKER

Elmer D. Austin, P.O. Box 48, Umatilla, Fla.

Filed Feb. 5, 1973, Ser. No. 329,515
Int. Cl. A01g 19/00
U.S. Cl. 56—328 R 8 Claims



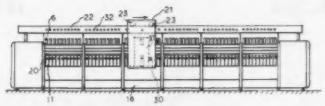
An apparatus for mechanically removing fruit from trees and collecting the picked fruit in a container which can be tilted to discharge the fruit when the container is substantially filled. The apparatus includes a picker head having a rotating cylinder with a plurality of fingers or tines mounted thereon and each of such fingers is inversely curved relative to the direction of rotation of the cylinder.

3,810,352

AUTOMATIC YARN PIECING APPARATUS FOR A CONTINUOUS RINGLESS SPINNING MACHINE AND METHOD OF USING SAME

Tsutomu Miyazaki, and Suzuki Kariya, both of Yoshihisa, Nagoya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Feb. 18, 1970, Ser. No. 12,308
Claims priority, application Japan, Feb. 25, 1969, 44-14405; Mar. 15, 1969, 44-19695
Int. Cl. D01h 15/00
U.S. Cl. 57—34 R 26 Claims



The present invention relates to the continuous ringless spinning machine for carrying out the piecing of supplied fiber and yarn end in a rotary spinning chamber, wherein a yarn piecing machine running along the spinning unit of the spinning machine stops in front of the detected spinning unit involved in yarn breakage. The yarn end of the package is caught and drawn by means of suction to guide the yarn end above the spinning unit involved in yarn breakage. At the same time the yarn is cut off leaving a predetermined length of said yarn, and the broken yarn end is introduced into the spinning unit involved in yarn breakage to have the same turned into the spinning chamber. Thereafter said yarn is continuously withdrawn from the spinning chamber to automatically carry out the piecing operation of the finished yarn.

3,810,353

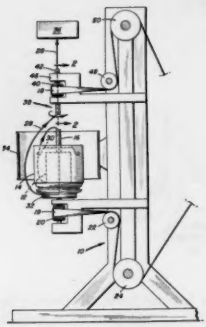
TWO FOR ONE TWISTING DEVICE

Philip R. Petersen, 1427 Hartford Ave., Charlotte, N.C.

Filed June 21, 1971, Ser. No. 154,951
Int. Cl. D01h 1/10
U.S. Cl. 57—58.83 6 Claims

An improved two for one yarn twisting machine having an obstruction-free tubular guide rotatable between the yarn

package and the take-up means. The tubular guide is rotated in the same direction and preferably at the same or greater



speed as the twister balloon to decrease friction in the yarn linear movement, consequently decreasing yarn tension and enabling the use of higher linear speeds.

3,810,354

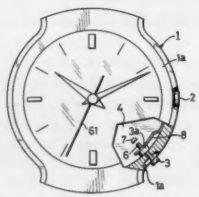
QUICK CORRECTION MECHANISM FOR A SECONDS HAND OF A TIMEPIECE

Akira Naikaido, Tokyo; Mitsuo Onda; Takayasu Machida, both of Saitama; Fumio Nakajima, Tokyo; Takashi Toida, Tokyo, and Yoshihiko Yanagawa, Tokyo, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Jan. 5, 1972, Ser. No. 215,515

Int. Cl. G04c *3/00*

U.S. Cl. 58—23 D **10 Claims**



This invention relates to a quick correction mechanism for the seconds hand of an electronic timepiece.

The object is to provide a unique mechanism residing in such a point that by operating a manual control means, preferably shaped into a special stem other than the regular winding stem, to perform a number of reciprocations corresponding to the number of seconds to be corrected, a drive coil is energized to have a corresponding number of drive current pulses which are then utilized to rotate the rotor of a step motor by a corresponding angle. This rotational movement is transmitted through mechanical transmission means to the conventional seconds hand gear which thus corrects correspondingly the position of the seconds hand.

3,810,355

ELECTRONIC CIRCUIT FOR QUARTZ CRYSTAL WATCH

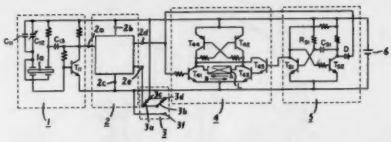
Kazuo Ito, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Mar. 17, 1972, Ser. No. 235,640

Claims priority, application Japan, Mar. 20, 1971, 46-15669

Int. Cl. G04c *3/00;* **G04b** *27/00*

U.S. Cl. 58—23 A **9 Claims**



A watch movement constructed as an electronic circuit provided with an oscillating circuit having a quartz oscillator or resonator and a capacitor roughly adjusting the frequency of the oscillator with a variable capacitor for finally adjusting the frequency of a time base output thereof. The oscillating circuit is temperature compensated. The oscillator output is received by a fourteen-stage frequency-dividing circuit having complementary MOSFETS arranged as binary circuits with a wave-shaping circuit reducing the frequency of the oscillations to about one Hz. The frequency-divided signal is applied to driving circuitry that develops in conjunction with pulse-generating circuitry opposite-going pulses applied to a transducer that converts the pulses to rotary motion using a driving gear wheel of a second hand of a watch and of a gear train thereof.

3,810,356

TIME CORRECTING APPARATUS FOR AN ELECTRONIC TIMEPIECE

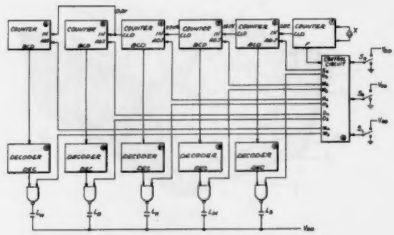
Kinji Fujita, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Apr. 17, 1973, Ser. No. 351,943

Claims priority, application Japan, Apr. 17, 1972, 47-38529

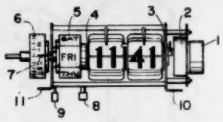
Int. Cl. G04b *27/00*

U.S. Cl. 58—23 R **12 Claims**



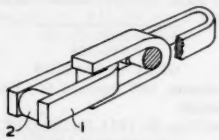
A time correcting apparatus for an electronic timepiece having a digital time display including a selecting switch for selecting the digit of the display to be corrected, which digit is visually identified, and a correcting switch for correcting that digit. Time correction is achieved by the combined operation of the two switches.

3,810,357
TIMER DEVICE
Kingo Murata, Shiki, Japan, assignor to Kabushiki Kaisha Koparu, Itabashi-Ku, Tokyo-To, Japan
Filed Mar. 16, 1973, Ser. No. 342,249
Claims priority, application Japan, Mar. 17, 1972, 47-31970
Int. Cl. G04b 23/08
U.S. Cl. 58—33 3 Claims



A timer device comprising seven settable operating members radially arranged being equally spaced on a calendar day indicating drum of a clock device and a switch device operable by said operating members only in the set position in order to actuate said switch at the pre-selected time on pre-selected days of a week.

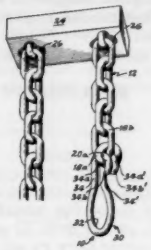
3,810,358
CHAIN CABLE
Peter Bruce, 10 Torphchen Pl., Edinburgh, Eh3, Scotland
Filed Oct. 18, 1971, Ser. No. 190,192
Claims priority, application Great Britain, Oct. 20, 1970, 49665/70
Int. Cl. F16g 13/12
U.S. Cl. 59—78 5 Claims



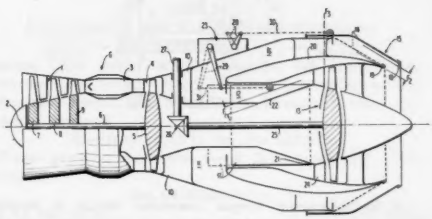
A chain cable in which each link is characterised by being formed from a bar bent into a U-shape bridged at the extremities by a cylindrical pin of length substantially equal to its diameter which mates under load with the U-shaped bar of a next adjacent link to give a substantial bearing area between links so that bearing failure may be eliminated as a first-occurring manner of failure of the chain cable when it is subjected to a tensile load.

3,810,359
LOAD CHAIN LOOSE END STOP
Kenneth D. Schreyer, Clarence, and Charles J. Manney, Kenmore, both of N.Y., assignors to Columbus McKinon Corporation, Tonawanda, N.Y.
Filed Jan. 15, 1973, Ser. No. 323,695
Int. Cl. F16g 17/00
U.S. Cl. 59—93 6 Claims

An end stop is associated with an elongated link type load chain in order to prevent a loose end of the chain from running through a hoist. The end stop includes a standard chain end link held sidewise or horizontally within the next to the last or vertically disposed link of the load chain by legs of a pull link; the pull link serving to define a convenient finger grip to facilitate manual pulling down on the loose end of the load chain.



3,810,360
GAS GENERATOR WITH SELECTIVELY CONNECTIBLE TURBINE SYSTEM
Heinrich Leibach, Grafrath-Wildenroth, Germany, assignor to Motoren-Und Turbinen-Union Munchen GmbH, Munchen, Germany
Filed Oct. 20, 1972, Ser. No. 299,279
Claims priority, application Germany, Oct. 20, 1971, 2152207
Int. Cl. F02c 7/02
U.S. Cl. 60—229 34 Claims

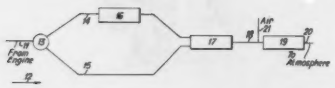


An engine arrangement for use with a vertical/short take-off and landing airplane having a gas generator supplying exhaust gases selectively to a turbine system and to a thrust nozzle. The turbine system is connectible to auxiliary lift devices, such as a lift rotor, for effecting vertical lift operations while the thrust nozzle is designed for normal cruising operations. The flow of exhaust gases to the turbine system and the thrust nozzle is controlled such that the total cross-sectional area, with respect to the exhaust gas flow, of both the turbine system and the thrust nozzle is maintained constant for all operations. Sliding members are arranged at the respective critical cross-sections in the inlets to the turbine system and thrust nozzle for blocking the exhaust gas flow. These sliding members are interconnected to one another such that opening of one causes a corresponding similar closing of the other.

3,810,361
EXHAUST SYSTEMS FOR INTERNAL COMBUSTION ENGINES

John Harold Weaving, Solihull, and Cecil David Haynes, Nuneaton, both of England, assignors to British Leyland Motor Corporation Limited, London, England

Filed Dec. 29, 1971, Ser. No. 213,680
Claims priority, application Great Britain, Jan. 19, 1971, 2460/71
Int. Cl. F01n 3/16
U.S. Cl. 60—288 2 Claims

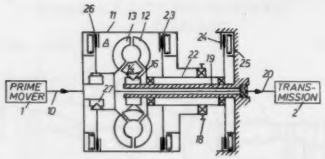


An exhaust system includes at least two paths in parallel for exhaust gases. Flow proportioning means govern the relative amounts of gas flowing along each path. A first catalytic reactor is disposed in one of the paths and a second reactor receives the output of the path having the first reactor and of at least one other path.

3,810,362
HYDRODYNAMIC TORQUE CONVERTER

Ernst-Guenter Finke, Steinheim-Kuepfendorf, Germany, assignor to Voith Getriebe KG, Heidenheim, Germany

Filed Apr. 25, 1973, Ser. No. 354,378
Claims priority, application Germany, May 6, 1972, 2222351
Int. Cl. F16d 33/00; F16h 41/00
U.S. Cl. 60—362 19 Claims

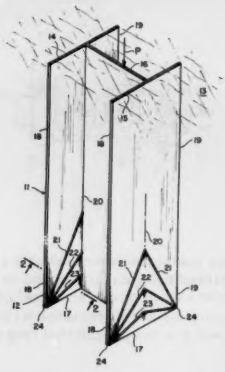


A hydrodynamic torque converter which is installed between the engine and the change-speed transmission of a heavy-duty vehicle and wherein the casing which defines a fluid enclosure is rotatable independently of the pump, turbine and one or more stators but can be coupled to the pump by a friction clutch for normal operation of the torque converter. The turbine is rigid with the output member, the casing is rigid with the input member, and the stator or stators are mounted on a hollow stationary shaft by means of one or more freewheels which confine the stator or stators to rotation in a single direction. If the torque converter is to act as a brake, the operator engages a friction brake which connects the pump to a stationary housing whereby the turbine acts as the rotor of a brake. A further clutch and/or a freewheel is provided between the input member and the output member to insure that the engine which rotates the input member can participate in the braking action. The freewheel can act as a brake during parking; it prevents the output member from rotating at a speed which exceeds the speed of the input member.

3,810,363
PILE WITH REINFORCED LEADING END

John M. Dar Conte, Brooklyn, N.Y., assignor to Manhattan College, Bronx, N.Y.

Filed Nov. 20, 1972, Ser. No. 307,996
Int. Cl. E02d 5/28
U.S. Cl. 61—53 6 Claims

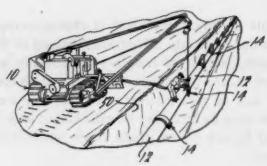


This disclosure teaches a pile preferably with an H-shaped cross section and having flanges at its leading end reinforced by at least one weld bead. Each of the flanges has a leading end margin and side margins perpendicular thereto so as to form corners. Each of the flanges also includes a median midway between the side margins. Preferably three beads are provided on each flange, each bead in the form of a chevron with an apex on the median and terminating at the corners. According to one preferred embodiment, one of the chevrons has an inclination of about 20°, one about 45° and one about 65°.

3,810,364
GROUND ANCHOR

Theodore B. Johnson, 540 Burrard St., Vancouver, British Columbia, Canada

Filed Dec. 30, 1971, Ser. No. 214,258
Int. Cl. F16l 1/00
U.S. Cl. 61—72.1 8 Claims



A novel and improved ground anchor means and method of anchoring pipelines or the like therewith, for application in an environment where extremely hard ground conditions are encountered such as perma-frost, hard packed clay, ice and the like.

ERRATUM

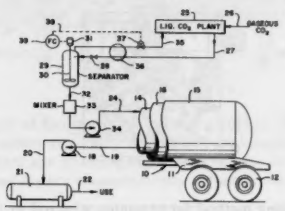
For Class 62—137 see:
Patent No. 3,810,386

3,810,365

METHOD OF DISTRIBUTING CARBON DIOXIDE

Robert S. Hampton, Livermore, and Paul J. Elfel, Walnut Creek, both of Calif., assignors to Lox Equipment Company, Livermore, Calif.

Filed June 12, 1972, Ser. No. 261,601
Int. Cl. F17c *11/00*
U.S. Cl. 62—48 29 Claims



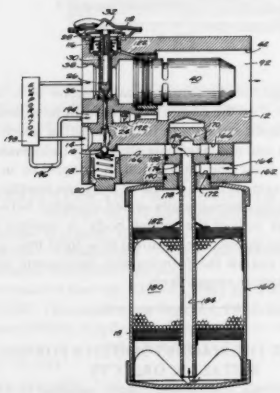
A system for producing, storing and distributing carbon dioxide as a multi-phasic product at triple-point temperature and pressure conditions. The system constitutes a method of storing and transporting carbon dioxide as a multi-phasic admixture of liquid and solid fractions in proportions enabling the carbon dioxide mass to be processed as a pumpable liquid or semiliquid; and steps of the method include providing the multi-phasic admixture, and confining the same within a container therefor after which the confined mass may be transported to a remote destination while being maintained in multi-phasic condition. In producing the admixture, liquid carbon dioxide is expanded toward the triple-point pressure while removing vapor to control the ratio of solids formation.

3,810,366

REFRIGERATION VALVE

Charles D. Orth, Cedarburg, Wis., assignor to Controls Company of America, Schiller Park, Ill.

Filed July 31, 1972, Ser. No. 276,676
Int. Cl. F25b *41/04*
U.S. Cl. 62—217 7 Claims



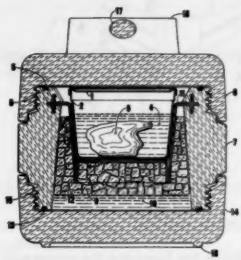
Each of the valves shown has parallel flow paths through the body with an expansion valve in the line leading to the evaporator thermostatically controlled by conditions in the return line. A second valve is positioned in the return line and controlled in response to a condition (temperature or pressure) which is indicative of conditions (temperature and pressure) in the evaporator. This arrangement prevents evaporator freezing. The valves are suited for flange fitting by reason of having all ports parallel enabling the valve to be secured to the evaporator (on one side) and to the compressor suction line and the condenser outlet on the other side. Since the thermostatic expansion valve can be "externally equalized" internally and all control functions are incorporated in the single body, the number of connections to be made by the system assembler are minimized. One version is provided with a receiver-drier which can be changed without disturbing other system connections.

3,810,367

CONTAINER FOR COOLING, STORAGE, AND SHIPPING OF HUMAN ORGAN FOR TRANSPLANT

William D. Peterson, 1996 E. 4675 South, Salt Lake City, Utah

Filed July 16, 1970, Ser. No. 55,512
Int. Cl. F25d *3/08*
U.S. Cl. 62—457 7 Claims



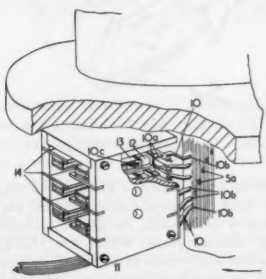
A system of containers having an organ holding container in a compartment, the compartment having its major interior walls being a heat transfer cup, the exterior of the heat transfer cup being another compartment for holding heat absorbing material (ice and water), the two compartments surrounded by a wall and lids of a heat insulating material.

3,810,368

PATTERNING MECHANISMS FOR KNITTING MACHINES

Thomas Cyril James Wade, Harcourt; Ian Matthewson, Fleckney, and Sidney Clifford Savage, Wigston Magna, all of England, assignors to Wildt Mellor Bromley Limited, Leicester, England

Filed May 21, 1971, Ser. No. 145,824
Claims priority, application Great Britain, May 22, 1970, 25043/70
Int. Cl. D04b *15/78*
U.S. Cl. 66—50 R 4 Claims



A patterning mechanism for a knitting machine comprising a bank of selector elements each associated with individual

electro-magnetic means for movement between selection and non-selection positions, in which means is provided to constrain the magnetic flux produced by the electro-magnetic means to follow a predetermined magnetic path whereby the influence of any electro-magnetic means upon any selector other than the associated selector is reduced to negligible proportions.

3,810,369

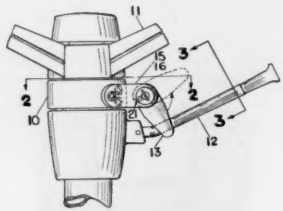
LOCKING DEVICE FOR A VEHICLE TRANSMISSION SHIFT LEVER

Michael A. Giovanniello, 915 S. 49th St., Philadelphia, Pa.

Filed Apr. 16, 1973, Ser. No. 351,603

Int. Cl. B60r *25/06*

U.S. Cl. 70—202 **1 Claim**



A locking device for blocking the moving of the transmission shift lever of a vehicle when it is in the "park"position. The shift lever is released by unlocking this device. In doing so, cited means rotates from a vertical to horizontal position, freeing the shift lever to move in any of the driving positions.

3,810,370

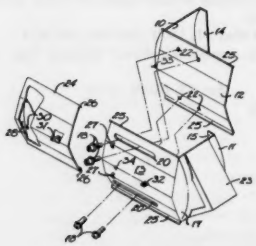
APPARATUS FOR IMMOBILIZING A VEHICLE

Jerry J. Jeppesen, 2223 S.W. 114th, Seattle, Wash.

Filed Oct. 24, 1972, Ser. No. 300,120

Int. Cl. B60r *25/00;* **B60t** *3/00*

U.S. Cl. 70—225 **7 Claims**



An apparatus for immobilizing a wheeled vehicle, such as an automobile or truck. Designed particularly for use in the on-site impounding of the vehicle, the device includes diametrically opposed arcuate plates which are clamped to the periphery of a tire and which mount a protruding abutment which makes it impossible to rotate the tire about the wheel axis. A protective shield or cover overlaps the operative portions of the apparatus and makes the structure inaccessible to all but its user.

3,810,371

HOT ROLLING METHOD FOR OBTAINING WIRE ROD

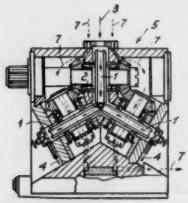
Ilario Properzi, Via Vittor Pisani 8, Milan, Italy

Filed Oct. 28, 1971, Ser. No. 193,435

Claims priority, application Italy, Feb. 20, 1971, 20812/71

Int. Cl. B21b *45/04, 45/02*

U.S. Cl. 72—39 **1 Claim**



A hot rolling method for obtaining wire rod or the like of small cross section and with a high quality surface, particularly for copper wire rod, comprising the steps of rolling the initial product in a multi-stand rolling mill including assemblies each with a number of rolls, simultaneously pickling the product being rolled, and raising the specific pressures generated during the hot rolling to the very high values which derive from working on wire rods below 6 mm. diameter and down to 2 mm. diameter.

3,810,372

DIE

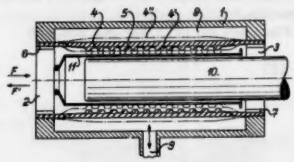
Christian A. Queyroix, Faramans, France, assignor to Aluminium Suisse S.A., Chippis, Switzerland

Filed Oct. 30, 1972, Ser. No. 301,737

Claims priority, application Switzerland, Nov. 5, 1971, 16110/71

Int. Cl. B21d *26/14*

U.S. Cl. 72—56 **9 Claims**



A die for magnetically forming impressions in a tubular metal workpiece. The die comprises a rigid hollow body having at least one aperture therein for introducing a workpiece and an induction coil and a tubular elastically deformable casing mounting at least one impression in intaglio or in relief. One end of the casing is fixed in said at least one aperture so as to define an annular, hermetically sealed chamber between itself and the inner wall of the hollow body. A conduit is provided for the introduction or removal of a fluid into or from said chamber to permit the forming and subsequent removal of a formed workpiece respectively.

3,810,373

MACHINE FOR THE MAGNETOMOTIVE FORMING OF METALLIC OBJECTS

Christian A. Queyroix, Faramans, France, assignor to Aluminium Suisse S.A., Chippis, Switzerland

Filed Dec. 6, 1972, Ser. No. 312,705

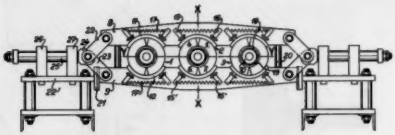
Claims priority, application France, Dec. 17, 1971, 71.018538

Int. Cl. B21d *26/14*

U.S. Cl. 72—56 **8 Claims**

A machine for the magnetomotive forming of metallic objects includes a die composed of a plurality of die sections, ad-

jacent die sections being articulated together about a joining line on the inner surfaces thereof, said inner surfaces and joining line of each pair of articulated die sections being coated



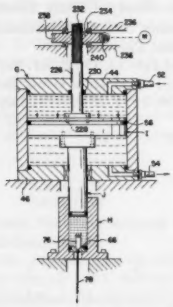
with a layer of flexible material, e.g. a rubber of 65° Shore hardness, which can carry or transmit an intaglio or cameo image. Means are provided for moving the die sections apart and together about a magnetomotive induction coil.

3,810,374

APPARATUS AND METHOD FOR HYDROSTATIC EXTRUSION

Alexander Zeitlin, 18 Macy Ave., White Plains, N.Y.

Filed Feb. 7, 1972, Ser. No. 224,210
Int. Cl. B21c *31/00*
U.S. Cl. 72—60 **6 Claims**



Metal is placed under high hydrostatic pressure to increase its ductility and force it through an opening in a die. Control means is provided for controlling the extrusion rate.

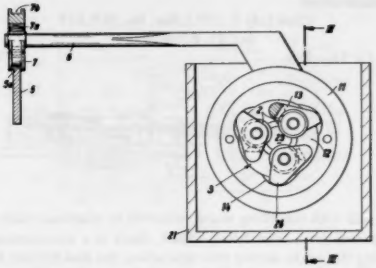
3,810,375

APPARATUS FOR THE PRODUCTION OF ELONGATED CONICAL METALLIC ARTICLES

Otto Oehm, Werdohl, Germany, assignor to Stahlwerke Bruninghaus Gesellschaft mit Beschrankter Haftung, Westhofen/Westfalen, Germany

Division of Ser. No. 826,943, May 22, 1969, Pat. No. 3,693,390. This application Sept. 21, 1972, Ser. No. 290,886
Claims priority, application Germany, Nov. 4, 1967, 27537
Int. Cl. B21b *31/22*
U.S. Cl. 72—81 **14 Claims**

Conical metallic blanks for the production of progressive helical springs are produced by rotating an elongated metallic rod about its axis, by simultaneously moving a die said die having three equidistant idler rolls each with an axis arranged askew relative to said die axis and by moving the rolls toward the axis of the workpiece in accordance with a predetermined pattern so that the rolls convert the workpiece into a blank which tapers from one end toward the other end, either gradually or stepwise. The means for moving the rolls toward the axis of the workpiece comprises a fixed template and a scanning arm whose follower tracks the template and which



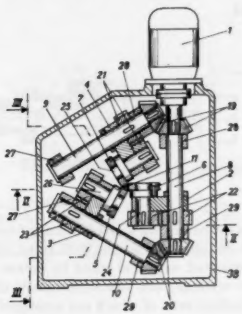
transmits motion to the rolls by way of a turnable ring and pivotable one-armed levers.

3,810,376

ROLL STAND FOR COLD WORKING OF ROLLED STEEL IN ROD OR WIRE FORM

Erich Elle, Glehn, Germany, assignor to Bau-Stahlgewebe GmbH, Dusseldorf-Oberkassel, Germany

Filed Mar. 30, 1972, Ser. No. 239,685
Claims priority, application Germany, Apr. 3, 1971, 2116426
Int. Cl. B21h *8/00*; B21b *13/10*
U.S. Cl. 72—194 **5 Claims**



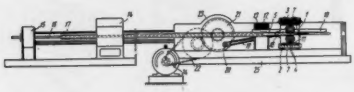
In a device wherein rod or wire is cold worked to provide it with one or more series of ribs thereon by being passed through three profile rolls simultaneously pressing against the rod or wire, a single drive is provided for said profile rolls, comprising a primary drive shaft and two secondary drive shafts at 60° to each other and to the primary drive shaft. Each of the shafts for the profile rollers is driven from its corresponding primary or secondary drive shaft and each of said shafts for the profile rollers is pivotally mounted with respect to its primary or secondary drive shaft. Means are provided to releasably hold the pivotally mounted profile rollers against the rod to be worked regardless of variations in diameter along the length of such a rod.

3,810,377

THIN-WALLED TUBE COLD-ROLLING MILL

Pavel Ivanovich Orro, ulitsa Kirova, 8, kv. 25, Dnepropetrovsk, U.S.S.R., and Anatoly Vasilievich Kirilenko, deceased, late of ulitsa Kirova, 7/4, late of Dnepropetrovsk, U.S.S.R. (by Nilla Sergeevna Kirilenko, administratrix)

Filed July 7, 1972, Ser. No. 269,817
Int. Cl. B21b 17/10
U.S. Cl. 72—208 3 Claims



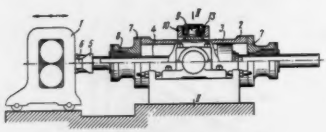
A mill with travelling stand, wherein to eliminate sliding of the passes on a tube being rolled, there is a mechanism for moving the racks during mill operation, the mechanism being designed so as to ensure variations in the rolling radius when the tube is strained.

3,810,378

APPARATUS FOR BALANCING INERTIAL FORCES OF RECIPROCATING MASSES OF TUBE COLD ROLLING MILL STAND

Sergei Nikolaevich Kozhevnikov, ulitsa Vystavochnaya, 3 kv. 73, Kiev; Jury Ivanovich Cherevik, ulitsa Belostotskogo, 114, kv. 1, Dnepropetrovsk; Arkady Semenovich Tkochenko, Prospekt Gegarina, 63, kv. 22, Dnepropetrovsk; Bronislav Mecheslavovich Klimkovsky, ulitsa Universiteskaua 1, kv. 12, Dnepropetrovsk; Valentin Ivanovich Toloka, Pervomaiskaya ulitsa, 32, kv. 18, Elektrostal Moskovskoi oblasti; Arkady Semenovich Malkin, Prospekt Lenina, 63, kv. 6, Nikopol Dnepropetrovskoi oblasti, and Yakov Maximovich Bykov, ulitsa Pushkina, 18, kv. 26, Elektrostal Moskovskoi oblasti, all of U.S.S.R.

Filed July 6, 1972, Ser. No. 269,407
Int. Cl. B21b 17/10
U.S. Cl. 72—214 2 Claims



An apparatus for balancing inertial forces of reciprocatingly moving masses of tube cold rolling mill stand comprising an air cylinder connected with said stand by means of a plunger and having two vertically and two horizontally disposed journals, the longitudinal axes of which are arranged in one vertical plane.

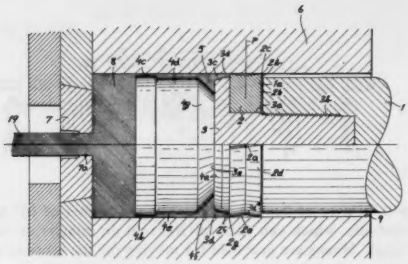
3,810,379

APPARATUS FOR THE EXTRUSION OF BILLETS

Ferdinand Schlogelhofer, Amstetten, Austria, assignor to Vereinigte Metallwerke Ranshofen-Berndorf Aktiengesellschaft, Vienna, Austria

Filed June 15, 1972, Ser. No. 263,104
Claims priority, application Austria, June 16, 1971, 5188/71
Int. Cl. B21c 23/00
U.S. Cl. 72—255 9 Claims

Billets are extruded from a container terminating in a die into which the extrusion ram or plunger is forced, to urge an extrusion or press disk toward the die orifice and drive the nonferrous metal of the billet therethrough. The ram is provided with a double-acting ejector disk which cleans the container wall and cooperates with the residual extrudable material, in the form of a lining or skirt, to withdraw it from the container.

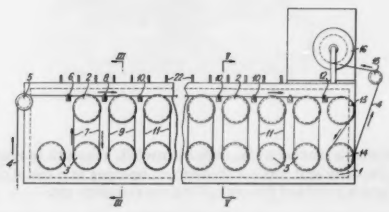


3,810,380

METHOD OF AND APPARATUS FOR DRAWING WIRE

John Newberry, Warrenpoint, and Alan George Albert Edward Ettie, Newry County Down, both of Northern Ireland, assignors to British Insulated Callender's Cables Limited, London, England

Filed July 14, 1972, Ser. No. 272,081
Claims priority, application Great Britain, July 20, 1971, 34031/71; July 30, 1971, 35997/71; July 30, 1971, 35998/71
Int. Cl. B21c 1/12
U.S. Cl. 72—279 3 Claims



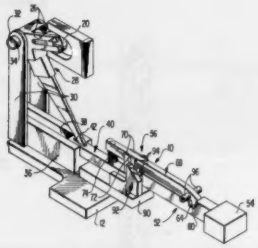
In a wire-drawing machine with at least two dies, each drawing block has an effective surface that is tapered from one end of its rotation axis to the other and has independently adjustable driving means having a working range in which the angular velocity of the drawing block can change in response to variations in the speed of wire frictionally engaged therewith without any substantial change in the torque of the driving means and independently of the other drawing blocks. Preferred driving means are turbine motors or pneumatic displacement motors, preferably supplied from a common source of working fluid, and electric torque motors.

After threading up, the blocks are driven at a low speed and the take-up is adjusted to a starting condition in which at least some of the drawing blocks are overdriven, and any that are not overdriven engage the wire without slip; each slipping block is slowed until slip ceases, and then the drawing blocks and the take-up are accelerated in unison without slip recurring.

3,810,381
DETACHABLE SLIDABLE FORM BLOCK FOR RECIPROCATING DIE PRESS

Josef Roth, 13694 Settlement Acres Dr., Brookpark, Ohio

Filed Mar. 13, 1973, Ser. No. 340,792
Int. Cl. B21j 13/00
U.S. Cl. 72—421 10 Claims

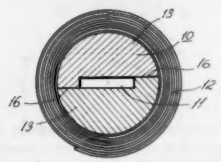


A form block is coupled to a driven slide for movement into and out of a path of a reciprocating die press ram permitting removal of a formed part outside of the press area and replacement with a new part which then moves into the path of the reciprocating ram. A driving slide coupled to the reciprocating die press ram oscillates to place the form block beneath the ram as the ram descends, and out of the path of the reciprocating ram as the ram moves away from the stationary bed. A mechanical clutch declutches the driven slide from the driving slide after the form block is aligned with the descending ram and just before impact of the ram with the work piece to insure cessation of movement of the work piece and the underlying form block during die forming.

3,810,382
MOULDS

Per-Olof Strandell, Taby, Sweden, assignor to Sandvik Aktiebolag, Fack, Sandviken, Sweden

Continuation of Ser. No. 47,684, June 19, 1970, abandoned.
This application Oct. 12, 1972, Ser. No. 296,897
Claims priority, application Switzerland, June 25, 1969, 9025/69The portion of the term of this patent subsequent to Sept. 28, 1988, has been disclaimed.
Int. Cl. B21c 3/00
U.S. Cl. 72—467 1 Claim

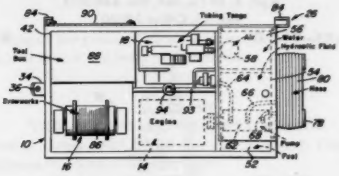


A reinforced mould, including a mould body having in at least one end surface thereof a mould cavity which presents relatively sharp corners when seen in cross section, and in which the mould body has arranged along at least part of its axial length a pre-tensioned reinforcing means in the form of at least one winding of thin metallic strip material and is slotted generally axially along at least two of said corners to form separate body portions, said body portions being held in contiguous relationship solely by the pre-tensioning force exerted by the reinforcing means on said body.

3,810,383
COMPACT TUBING TESTING UNIT

Carrol J. Matherne, P.O. Box 763, Houma, La.

Filed Mar. 17, 1972, Ser. No. 235,765
Int. Cl. G01m 3/08
U.S. Cl. 73—40.5 R 12 Claims

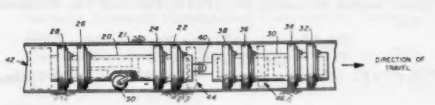


A mobile unit for use in testing tubing joints as the tubing is being made up and run into an oil well in which the mobile unit includes a framework compactly receiving an engine driving a hydraulic pump, a drawworks, high pressure hydraulically actuated pump for pressuring the tubing joint to be tested and tubing tongs for use in making up the tubing. The frame also includes the compact arrangement of tanks for hydraulic fluid, water, compressed air tank and fuel tank for the engine and a hose rack for storage of the hoses employed and a bar rack along one side of the frame. This enables a single unit to be employed for effectively testing tubing and replaces four separate pieces of equipment now being employed in the industry for testing tubing.

3,810,384
ULTRASONIC PIPELINE INSPECTION DEVICE

Dwight J. Evans, 4107 E. 49th, Tulsa, Okla.

Filed Feb. 1, 1971, Ser. No. 111,550
Int. Cl. G01n 29/04
U.S. Cl. 73—67.8 S 9 Claims

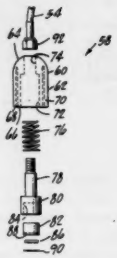


Ultrasonic instrumentation is incorporated into a self-contained and self-propelled unit capable of traversing through generally inaccessible pipe such as a buried pipeline to provide a record of pipe wall thickness variation and/or defects or other abnormalities which may exist in the pipeline under examination. The information is correlated to the rate of travel of the unit and with other orientation means, such as the physical configuration of the pipeline, fittings, valves, etc., to properly determine the location of any such abnormalities.

3,810,385
TRANSDUCER MEANS FOR ULTRASONIC EXTENSOMETER

Howard J. McFaul, Westminster; Donald C. Erdman, and Evan B. Friedmann, both of Pasadena, all of Calif., assignors to McDonnell Douglass Corporation and Donald C. Erdman Company, Inc., part interest to each

Division of Ser. No. 117,635, Feb. 22, 1971. This application Apr. 3, 1972, Ser. No. 240,871
Int. Cl. G01n *29/00*
U.S. Cl. 73—71.5 U **8 Claims**

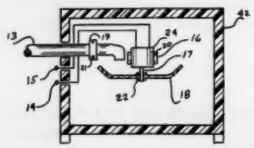


Magnetic transducer assembly for use with an ultrasonic extensometer for measuring the elongation of a bolt or the like being tightened against structure which it fastens, the extensometer including a transducer magnetically coupled to one end of the bolt, a pulser/receiver for generating a periodic pulse signal which energizes the transducer that is subsequently energized by the echo pulse from the far end of the bolt to provide an echo signal which is received and amplified, indicating circuit means for detecting and providing a correct couple indication between the transducer and its associated bolt end, and measuring circuit means for displaying a variable duration meter signal responsively produced by the amplified echo signal and controlled in duration by a vernier signal responsively produced by the pulse signal after a predetermined delay which is adjustable to index the vernier signal a desired amount with respect to the meter signal so that when the bolt has been elongated the proper amount, the amplified echo signal then coincides with the indexing vernier signal and the duration of the meter signal is reduced to zero.

3,810,386
ICE DISTRIBUTION AND LEVEL CONTROL

Robert Burton McAshan, Jr., 1719 S. Post Oak Ln., Houston, Tex.

Filed July 22, 1971, Ser. No. 165,144
Int. Cl. G01n *11/14*
U.S. Cl. 62—137 **9 Claims**

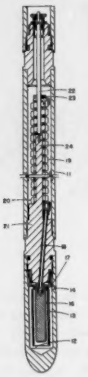


An apparatus for controlling filling of an ice bin from an ice refrigeration apparatus where the ice is added to the bin and distributed by a rotating slinger powered by an electric motor and including a switch in the refrigerator power supply. When ice accumulates in the bin, it drags the slinger and increases the power requirements to the motor. This is reflected as a current change. A level detector senses current flow outside a permitted range. The detected change opens the switch and turns off the refrigeration equipment.

3,810,387
APPARATUS FOR RECORDING BOREHOLE CONDITIONS AT THE SURFACE

Thomas H. Stancliff, Houston, Tex., assignor to Sperry-Sun Well Surveying Company, Sugar Land, Tex.

Filed Dec. 8, 1972, Ser. No. 313,367
Int. Cl. E21b *47/06*
U.S. Cl. 73—151 **15 Claims**

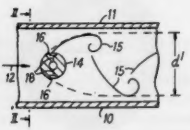


In a surface recording pressure gauge a bourdon tube is used to detect pressure change. Angular motion generated by the bourdon tube is detected by a scan system which in turn feeds digital data to the surface indicative of pressure change. The surface electronics are conveniently programmed for calibration of the particular gauge and provide computed read-outs of true pressure in psi.

3,810,388
FLOWMETERS

Terence Cousins, Luton, England, and Klaus Joachim Zanker, Kiriat, Israel, assignors to George Kent Limited, Luton, England

Filed Mar. 22, 1973, Ser. No. 343,913
Claims priority, application Great Britain, Mar. 22, 1972, 13384/72
Int. Cl. G01f *1/00*; G01p *5/00*
U.S. Cl. 73—194 B **13 Claims**



A flowmeter in which an elongated body extends across a conduit and causes vortices to be formed in a fluid flowing along the conduit. The frequency at which vortices are formed is proportional to the rate of flow of the fluid and sensing means are provided for generating a signal proportional to that frequency. The width of the body in a direction perpendicular to the direction of the flow is so arranged that the constant of proportionality between the frequency of vortex formation and the flowrate is at a minimum value.

3,810,389

HYGROMETERS

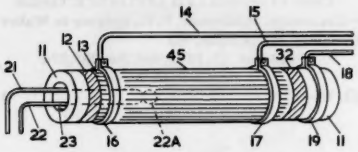
Alfred Charles Jason, Aberdeen, Scotland, assignor to National Research Development Corporation, London, England

Filed May 3, 1972, Ser. No. 249,793

Claims priority, application Great Britain, May 4, 1971, 12837/71

Int. Cl. G01n 25/56

U.S. Cl. 73—336.5 15 Claims



Vapour pressure of a substance in a quantity of gas, usually water in air, is measured by means of an electrical circuit element, the impedance of which is dependent on the amount of said substance adsorbed in the element. The impedance is sensed by a detecting circuit and any change in impedance controls through said circuit a supply of energy to a heater associated with the element so that the impedance of the element remains substantially constant. The power supplied to the heater is then a measure of the vapour pressure of the said substance.

By measuring the temperature of the electrical circuit element, and of the quantity of gas at a location away from the element by means of suitably selected thermistors the relative humidity of the substance in the gas can be determined.

3,810,390

MINIATURE PRESSURE GAUGE

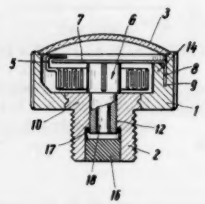
Gerhard Neugebauer, Trennfurt, Germany, assignor to Alexander Wiegand Armaturen-und Manometerfabrik, Main, Germany

Filed Feb. 23, 1973, Ser. No. 335,338

Claims priority, application Germany, Feb. 25, 1972, 7207148

Int. Cl. G01l 7/04

U.S. Cl. 73—418 5 Claims



A miniature pressure gauge comprised of a housing with connecting sockets and with a spiral spring communicating with the inlet bore thereof. At the free end of the spring a pointer is arranged that is superimposed over a dial.

3,810,391

ADJUSTABLE PIPETTE

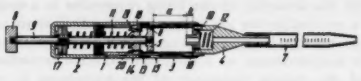
Osmo A. Suovaniemi, Makitorpantie 7 B 18, Helsinki 62, Finland

Filed June 19, 1972, Ser. No. 264,164

Int. Cl. B01l 3/02

U.S. Cl. 73—425.6 4 Claims

A pipette includes a piston, the movement of which is limited by a regulating member. A scale indicates by the position of the regulating member relative to the body of the pipette the volume of liquid drawn into a container by the movement of the piston. The scale is readable through a transparent member in the body of the pipette.



3,810,392

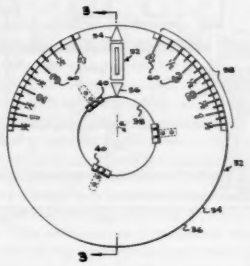
VEHICLE WHEEL WEIGHT LOCATOR

Bernard J. Green, 905 Broad St., and Milton J. Green, 901 Anderson St., both of Bristol, Tenn.

Filed July 26, 1973, Ser. No. 382,790

Int. Cl. G01m 1/12, 1/16

U.S. Cl. 73—458 14 Claims



A vehicle wheel weight locator for use in positioning single sized weights after determination of the amount of unbalance of the vehicle wheel by a spin balancer. The weight locator having a plate member is secured onto the hub of the spin balancer and aligned by alignment indicia. The reading of the balancer is transferred to the weight locating indicia on the base member to permit single sized weights to be applied to the wheel to correct the unbalance of the wheel.

3,810,393

ANGULAR ACCELEROMETERS

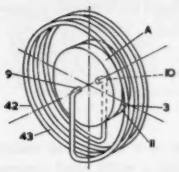
William Ronald MacDonald, Hindhead, England, assignor to National Research Development Corporation, London, England

Continuation-in-part of Ser. No. 106,223, Jan. 13, 1971, abandoned. This application Jan. 15, 1973, Ser. No. 323,699

Claims priority, application Great Britain, Jan. 15, 1970, 1982/70

Int. Cl. G01p 15/08

U.S. Cl. 73—505 9 Claims



An angular motion transducer comprises a rigid sealed gas-tight container, a spiral or toroidal tube mounted within the container and a variable capacitance detecting device con-

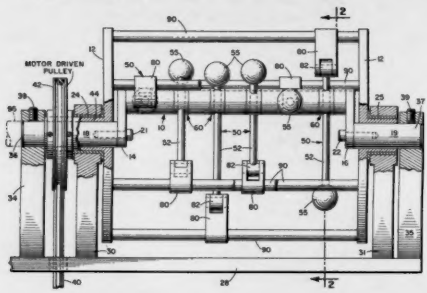
nected to the tube, the tube being provided with an opening at some point along its length communicating directly with the interior of the container, and a gas filling the tube and the container, the detecting device being responsive to a mechanical force exerted by the gas in response to angular movement of the transducer. The transducer can act equally well as an angular accelerometer or a torsional vibration transducer provided the natural frequency of the transducer is correctly chosen with respect to the variations to be measured.

3,810,394

CENTRIFUGAL MECHANICAL DEVICE

Leo J. Novak, 2941 S. Dayton Lakeview Rd., New Carlisle, Ohio

Filed Dec. 1, 1972, Ser. No. 311,116
Int. Cl. F16h *33/10*
U.S. Cl. 74—87 **6 Claims**



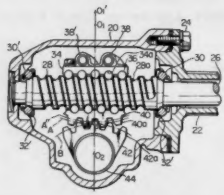
A machine for producing directable centrifugal force or thrust utilizing a series of off center rotating masses such that there is a total excess torque component of centrifugal thrust exerted in a predetermined direction over that produced in a direction opposite thereto.

3,810,395

WORM AND RECIPROCATING BALL TYPE STEERING GEAR FOR MOTOR VEHICLES

Koichi Takahashi, Yokohama; Nobuteru Hitomi, and Tokiyoshi Yanai, both of Yokosuka, all of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan

Filed Aug. 14, 1972, Ser. No. 280,177
Claims priority, application Japan, Aug. 19, 1971, 46-63254
Int. Cl. F16h *27/02*
U.S. Cl. 74—89.15 **3 Claims**



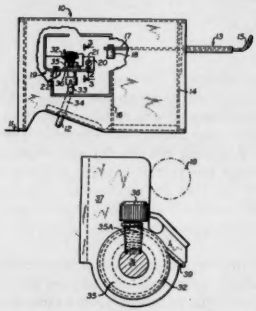
Herein disclosed is a worm and reciprocating ball type steering gear having a worm shaft connected to a steering shaft and having an external helical groove, a nut member longitudinally movably fitting on the worm shaft and having an internal helical groove aligned with the opposed helical groove in the worm shaft, balls rolling in the grooves in the worm shaft and nut member, and a sector gear in mesh with a rack portion formed on the nut member. Rotation of the worm shaft as brought about by the rotation of the steering shaft is converted into longitudinal movement of the nut member and this movement, in turn, results in rotation of the sector gear. The rack portion of the nut member is generally curved in a quadratic formation in the direction of axis of the worm shaft so that the steering gear ratio is smoothly varied as the steering angle is varied during steering operation.

3,810,396

COIN CONTROLLED APPLIANCE TIMER

Harry Greenwald, Whitestone, N.Y., assignor to Walter Kidde & Company, Inc., Clifton, N.J.

Filed Nov. 13, 1972, Ser. No. 305,974
Int. Cl. F16h *21/44*
U.S. Cl. 74—107 **1 Claim**



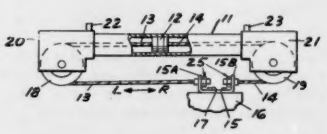
An appliance timer in which the timer control shaft is rotated to initiate a cycle of operation by the action of a coin slide upon a cam. The cam is connected to a collar coupled to the timer shaft, and is rotatable relative to the collar. A spring resiliently biases the cam for engagement with the head of a screw securing the collar to the timer shaft, so that when the coin slide is advanced forward the cam turns the timer shaft to a cycle starting position, and when the coin slide is withdrawn, the cam turns in the reverse direction to allow return of the coin slide to its starting position.

3,810,397

AUTOMATIC SLACK ADJUSTER FOR CABLE CYLINDER ASSEMBLY

Joseph H. Green, 7332 Greenfield Rd., Dearborn, Mich.

Filed Dec. 4, 1972, Ser. No. 311,880
Int. Cl. F16h *21/44*
U.S. Cl. 74—110 **6 Claims**



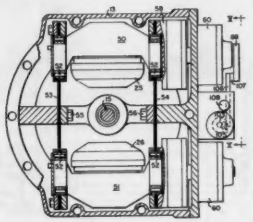
An automatic slack adjuster for the cables of a cable cylinder assembly having a work piece supporting bracket at the outboard ends of the cables. The invention resides in the provision of threaded fittings secured to the ends of said cables and slideable in bores formed in the bracket, and spring biased nuts rotatable on said fittings with means to permit the longitudinal movement but prevent the radial movement of said fittings when slack develops in either of said cables.

3,810,398

TORIC TRANSMISSION WITH HYDRAULIC CONTROLS AND ROLLER DAMPING MEANS

Charles E. Kraus, Austin, Tex., assignor to Tracor, Inc., Austin, Tex.

Filed Nov. 16, 1972, Ser. No. 306,909
Int. Cl. F16h *15/10, 15/12*
U.S. Cl. 74—200 13 Claims



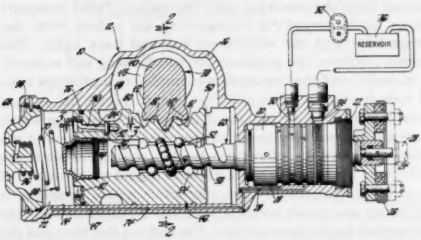
A rotary motion transmitting device having oppositely disposed toric discs mounted on its input and output shafts. Motion transmitting rollers are frictionally engaged between the toric discs for transmitting motion from one toric element to the other and supported by tension sheets extending between opposite rollers to balance forces exerted on the rollers. Independent hydraulic precess cams control the position of each roller.

3,810,399

STEERING GEAR ASSEMBLY

Floyd A. Schluckebier, Frankenmuth, and Ronald L. Harkrader, Saginaw, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 22, 1973, Ser. No. 334,586
Int. Cl. F16h *55/18, 1/12*; B62d *1/20*
U.S. Cl. 74—409 3 Claims



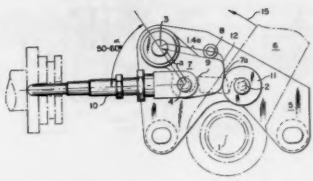
A steering gear assembly of the type adapted for automobile application and including a housing, a worm shaft rotatably supported on the housing, a rack nut disposed in the worm shaft for bodily shiftable movement in response to rotation of the worm shaft, a plurality of straight rack teeth on the rack nut, a pitman shaft rotatably supported on the housing and having a sector portion with a plurality of straight gear teeth, the roots of which are parallel to the longitudinal axis of the pitman shaft, and a torsion spring disposed between the rack nut and the housing, the torsion spring functioning to bias the rack nut toward a no-lash position wherein the rack teeth are disposed at an angle relative to the gear teeth so that the former wedgingly engage the latter to eliminate lash therebetween. The gear teeth generate a reaction force on the rack teeth during periods of force transfer therebetween which reaction force rotates the rack nut against the spring bias until the area of contact between the teeth is maximized.

3,810,400

VARIABLE RATIO BRAKE OPERATING LEVER

Hans O. Schroter, Robert-Koch-Strasse 18, 8 Munich 22, Germany

Filed Feb. 12, 1973, Ser. No. 331,698
Claims priority, application Germany, Feb. 12, 1972, 7205400
Int. Cl. G05g *1/04*
U.S. Cl. 74—518 9 Claims



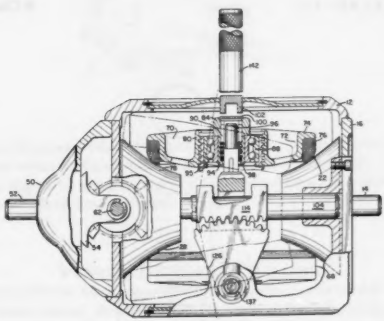
A variable ratio operating lever for the brake system of a vehicle includes a pivotally mounted operating lever upon which is a roller which is engageable with a hyperbolic cam surface formed on a pivotally mounted control lever. A rod which is adapted to actuate the brake system is pivotally connected to the control lever. When the operating lever moves in the braking direction, its roller will roll along the hyperbolic cam surface to produce a predetermined variable ratio of force applied to the operating lever and the force acting on the actuating rod. This ratio attains a maximum when the roller engages the apex of the hyperbolic curve and this maximum ratio is maintained upon continued movement of the operating lever in the braking direction.

3,810,401

TRANSMISSION

William Edlich, Union Hill, R.F.D. 1, Dover, N.J.

Filed Sept. 5, 1972, Ser. No. 286,034
Int. Cl. F16h *37/06, 15/08*
U.S. Cl. 74—691 8 Claims



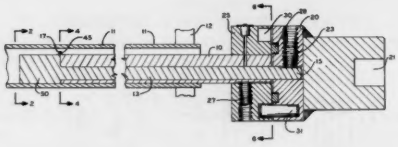
An improved split torque gear reducer transmission is disclosed which incorporates an improved novel ratio range selector transmission control and a disengaging mechanism for eliminating creep while the transmission is in the neutral mode. The ratio range selector comprises a lockable control lever moving a pivotable gear segment and gear rack to position the transmission elements in the desired mode.

3,810,402

TUBE SEVERING DEVICE

Charlie D. Miller, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 9, 1972, Ser. No. 305,022
Int. Cl. B23b 5/14
U.S. Cl. 82—82 11 Claims



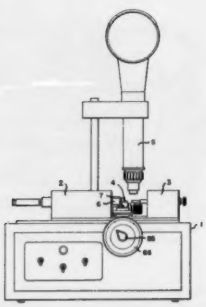
A cylindrical housing is dimensioned for insertion in a heat exchanger tube. The housing is formed with a bore extending therethrough and located eccentrically relative to the axis of the housing. A shaft is journaled in the bore and is provided at its inner end with a tube penetrating rib arranged eccentrically with the axis of the shaft. The eccentricity of the shaft penetrating rib relative to the axis of the shaft is comparable to the eccentricity of the housing relative to the axis of the shaft, whereby the penetrating shaft rib may be positioned in registration with the inner end of the housing to permit the same to be inserted in the tube. Driving means is operable to effect rotation of the shaft moving the penetrating rib thereon into engagement with the inner surface of the tube. This rotation on the shaft extends through a part of a revolution and thereupon, the driving means effects rotation of the shaft and the housing in unison effecting complete severance of the tube.

3,810,403

CONTACT LENS EDGING MACHINE

Joseph N. Ianuzzi, Binghamton, and Gordon Hurlbut, Windsor, both of N.Y., assignors to Union Electronics (a Division of The Union Corporation), Windsor, N.Y.

Filed Aug. 9, 1972, Ser. No. 278,940
Int. Cl. B23b 1/00
U.S. Cl. 82—1 C 8 Claims



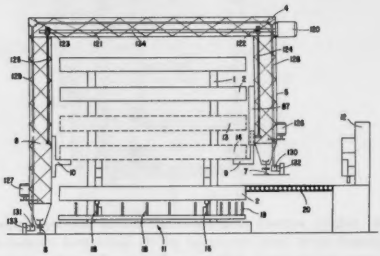
A contact lens is edged by holding it against a rotating faceplate by suction and moving a cutting tool against it at a controlled rate of travel below that which would dislodge the lens from the faceplate. Suitable apparatus is disclosed.

3,810,404

APPARATUS FOR SUPPLYING MATERIAL

Paul Stolzer, Achern, Germany, assignor to Keura Maschinenbau Gesellschaft vit beschrankter Haftung & Co. Kommanditgesellschaft, Achern, Germany

Filed Dec. 18, 1972, Ser. No. 316,427
Claims priority, application Germany, Dec. 18, 1971, 2163101
Int. Cl. B26d 7/06
U.S. Cl. 83—71 50 Claims



Material supply apparatus including pallets of equal size on which material to be fed to a cutting machine may be stored. The pallets are arranged, one above another, in alignment with one another in storage bays formed by shelving units. The storage bays of each shelving unit are positioned one above another. At least one of the shelving units is positioned in spaced relation with respect to another of the shelving units transversely of the longitudinal extent of the pallets, providing a free space between these shelving units. The width of the free space is greater than that of the pallets. A conveyor which is drivable in two opposite directions is positioned between the cutting machine and a withdrawal bay operatively associated with one of the shelving units. The withdrawal bay is part of an arrangement which includes members for withdrawing material from the pallets onto the conveyor and for reinserting material from the conveyor onto the pallets. Pallet transport devices are arranged for transporting the pallets from the storage bays into the withdrawal bay and back again. The transport devices, the members for withdrawing and reinserting material, and the conveyor are coupled to a program control system and are controlled by signals therefrom. A data carrier provided on each pallet is adapted to store data which determine the working speed of the cutting machine and the pressure exerted by clamping devices associated with the machine on the material being cut with regard to the nature of the material assigned to each respective pallet. A sensor is operatively associated with the withdrawal bay for sensing the data carried by the data carriers. The cutting machine and the clamping jaws are responsive to signals from the sensor which establish the working speed of the machine and the pressure exerted by the clamping jaws.

3,810,405

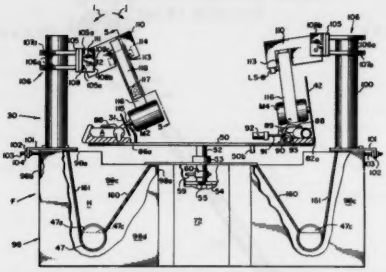
TRIMMING APPARATUS

John W. Oberloier, 491 Somerset Rd., Saginaw, Mich.

Division of Ser. No. 79,206, Oct. 8, 1970. This application June 19, 1972, Ser. No. 263,847
Int. Cl. B26d 5/10, 7/06
U.S. Cl. 83—100 16 Claims

Apparatus for trimming hollow plastic articles including a turntable for supporting and moving articles positioned thereon in a circumferential path, at least one saw member at a peripherally disposed saw station, mounted on a support arm for swinging movement between radially spaced inoperative and operative cutting positions for removing at least one end portion of the article, a plunge milling member for cutting an

aperture in the wall of the article, and a cutting member movable in a generally tangentially path of travel along a plane in-



tersecting said aperture to remove an end portion of the article outwardly of the aperture to provide a cutout in the article.

3,810,406

CONVEYOR DEVICE FOR CONVEYING BARS

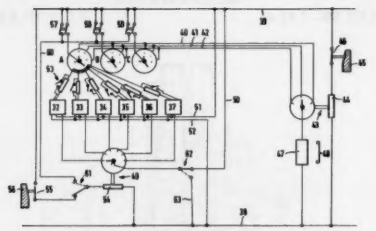
Carl Ullrich Peddinghaus, Lichtenplatzer Strasse 276, Wuppertal-Barmen, Obere, Germany

No Drawing. Filed July 11, 1972, Ser. No. 270,849

Claims priority, application Germany, July 12, 1971, 2134650; July 12, 1971, 2134652

Int. Cl. B26d *5/26*

U.S. Cl. 83—222 **10 Claims**



A conveyor device is provided for conveying bars longitudinally to a machine which processes the bars. A drive of a conveyor member which moves in the longitudinal direction can be switched off after predetermined section lengths have been attained and can be switched on again after processing has been carried out. The switching off and the switching on is controllable by means of impulses which are released by impulse generators when a pre-selectable section length is obtained by means of a section length selector switch or after processing has been carried out. The successive section length is pre-selected while the previous section length is being processed. The section length selector switches form together a sequence programme and the section length selector switches corresponding to the section lengths can be switched in to a programme storage circuit with a number of stores for forming the conveying programme. The circuit switches itself forward by one store at each switch-in step and is in turn able to be switched over to a control switch of a drive of the conveyor member in order for the conveying operation to be carried out, in which switch position it switches itself forward by one store after each section conveying and processing operation.

3,810,407

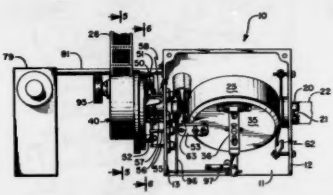
STAMP APPLICATING MACHINE

Robert N. Klund, Stillwater, and Merle H. Sorenson, Minneapolis, both of Minn., assignors to Delkar Industries, Inc., Minneapolis, Minn.

Filed Jan. 29, 1973, Ser. No. 327,634

Int. Cl. B65h *35/08, 37/04*

U.S. Cl. 83—285 **10 Claims**



A stamp applying machine wherein a roll of stamps is mounted to and for rotation with a stamp applying wheel and shaft assembly; the wheel has a stamp metering means mounted on the face thereof which is activated during a first limited part of the rotation of the stamp wheel to deliver one or more stamps to the outer periphery of the stamp applying wheel and a loop forming roller is operatively joined to the assembly intermediate the roll of stamps and the metering means and is moved transversely of the path of the stamps during a second part of the rotation of the assembly to form a free standing loop of stamps intermediate the metering means and the roll of stamps.

3,810,408

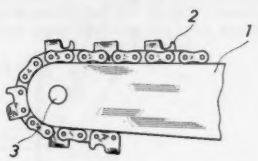
GUIDE FRAME FOR CHAIN SAW

Tetsuro Taira, and Akira Somekawa, both of Tokyo, Japan, assignors to Kaoru Tsumura, Miki, Hyogo, Japan

Filed Dec. 6, 1972, Ser. No. 312,503

Int. Cl. B27b *17/02;* **B23d** *57/02;* **G01d** *13/00;* **G01k** *1/02*

U.S. Cl. 83—802 **2 Claims**



An improved chain saw guide frame for power-driven saw chain which is fitted with a heat-sensitive colorant at a concave region in the nose part of the guide frame for detecting heat accumulation of the guide frame.

3,810,409

BANDMILL STRAIN MECHANISM

Francis Edwin Allen, North Vancouver, and James Daniel McGuire, Surrey, British Columbia, both of Canada, assignors to Letson And Burpee Ltd., British Columbia, Canada

Filed Apr. 3, 1972, Ser. No. 240,649

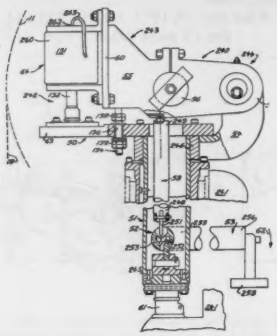
Claims priority, application Great Britain, Apr. 6, 1971, 08905/71

Int. Cl. B27b *13/08;* **B23d** *55/10*

U.S. Cl. 83—819 **13 Claims**

Strain mechanism for bandmill using deadweight lever mechanism in which undesirable effects of inertia of counterweight and friction at knife edges are reduced. Rolling diaphragm air cylinder is used in one of three positions. In first position cylinder extends between arbor carrier arm and

plunger tube and supplies portion of saw strain permitting lighter counterweight. In second position it extends between counterweight arm and plunger tube and eliminates counter-

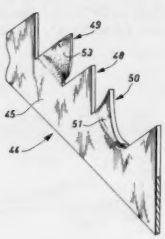


weights. In third position counterweight is supported on counterweight arm by yoke supported by cylinder which resiliently mounts weight.

3,810,410
SAW BLADE

Evangelos G. Athanasoulas, 20 Alexandrou Zarra St., Arta, Greece

Division of Ser. No. 880,343, Nov. 26, 1969, Pat. No. 3,661,037. This application May 8, 1972, Ser. No. 251,033
Claims priority, application Greece, Nov. 28, 1968, 36114
Int. Cl. B27b *33/06;* **B23d** *61/12*
U.S. Cl. 83—852 **6 Claims**



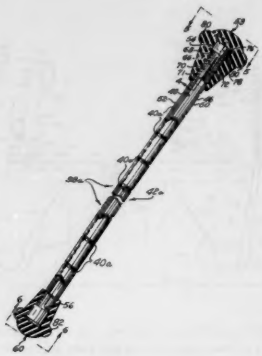
The teeth of a saw blade and particularly of a band saw blade are transversely set so that, for each such set tooth a portion of the tooth bounded by its leading edge and by an outwardly extending line of set is disposed transversely to the remainder of the tooth. The line of set extends edgewise outwardly from the leading edge of the tooth and preferably intersects the trailing edge of the tooth along a line generally parallel to the leading edge.

3,810,411
BATON

Eugene E. Schambacher, 12700 Eastwood Blvd., Garfield Heights, Ohio

Continuation-in-part of Ser. No. 638,032, May 12, 1967, abandoned. This application June 3, 1971, Ser. No. 149,707
Int. Cl. G09b *15/02*
U.S. Cl. 84—477 B **7 Claims**

A baton shaft is constructed from aluminum tubing which is anodized and dyed a desired color. Portions of the dyed surface are then removed to expose the aluminum which contrasts with the dyed surface portion and forms a design. A steel member is inserted inside the aluminum tube to provide for additional strength of the baton shaft. Balancing weights are secured to each end of the baton shaft. A ball is then posi-

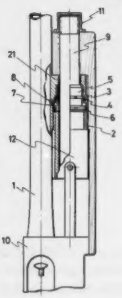


tioned on one end of the baton shaft and a tip is positioned on the other. The ball and tip have a number of lobes thereon to reduce rolling of the baton on a surface.

3,810,412
GAS CYLINDER FOR FIREARMS

Eduardo Iraegui Zamacola, San Ignacio 3, Elgoibar (Guipuzcoa), Spain

Filed Oct. 3, 1972, Ser. No. 294,594
Claims priority, application Spain, July 10, 1972, 182287
Int. Cl. F41d *5/10*
U.S. Cl. 89—191 A **2 Claims**



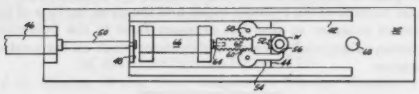
A gas cylinder for firearms includes a cylindrical hollow body fixed to the lower part of the barrel and loosely fixed to the tubular receiver or tubular magazine of the fire-arm. Such body is gas sealed as its bottom end with regard to the tubular magazine and has in its interior a piston which exactly fits into its inner surface and which can slide or be guided by the tubular magazine on being pushed or urged by the gasses which originate form a shot. The cylindrical body is interiorly stepped into two different diameters and the piston is loosely mounted on the tubular magazine and is prolonged, as a continuation of its adjustment area with the inner surface of the cylinder, into a coaxial tubular projections. Gas tight sealing of the cylindrical body or body of the gas cylinder is achieved with regard to the tubular magazine, by means of a joint or gland mounted on the smaller diameter part of such body which are held in place by a flexible washer or ring which fits on such coaxial projection of the piston.

3,810,413

PROGRESSIVE POT BROACH SYSTEMS

Raymond S. Kusz, Mt. Clemens, and Arthur B. Bassoff, Oak Park, both of Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Oct. 2, 1972, Ser. No. 294,383
Int. Cl. B23f 1/08
U.S. Cl. 90—10 9 Claims



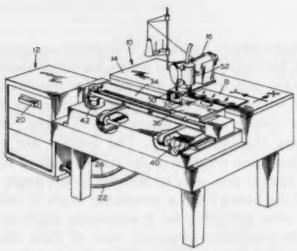
A broach system for broaching external gears comprising a plurality of separate broach units each comprising a generally tubular pot broach and a pusher located beneath the broach for receiving a work piece and pushing it upwardly through the broach. A work piece partially finished by one of the broach units is advanced into alignment in properly indexed position to the next broach unit.

3,810,414

METHOD FOR GENERATING CONTOURED PART HOLDERS

Heinz Joseph Gerber, West Hartford, Conn., assignor to The Gerber Scientific Instrument Company, South Windsor, Conn.

Filed July 26, 1972, Ser. No. 275,413
Int. Cl. B23c 1/16
U.S. Cl. 90—11 C 9 Claims



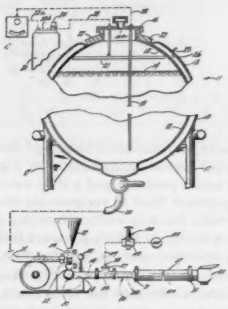
A method for generating contoured clamp members for part holders in an automatic sewing apparatus employs the sewing apparatus itself and a cutting tool such as a small motor-driven cutting wheel attached to the apparatus. The contour on a clamp member which later will form a portion of a part holder is generated by utilizing the same program tape as that used to control the relative motions of the part holder during a sewing operation. In carrying out the method, a non-contoured clamp member is positioned in the sewing apparatus and then the program tape controls the motions of the non-contoured clamp member relative to the cutting wheel so that the displacement routine followed is the same as in a sewing operation. The resulting contour formed by the cutting wheel on the clamp member is similar to the stitch path followed by the sewing apparatus on a collar, cuff, or other workpiece sewn by the apparatus.

3,810,415

WHIPPING APPARATUS

John MacManus, 143-16 - Twenty-second Rd., Whitestone, N.Y.

Division of Ser. No. 837,087, June 27, 1969, Pat. No. 3,713,841, which is a continuation of Ser. No. 571,885, Aug. 11, 1966, abandoned. This application Oct. 13, 1972, Ser. No. 297,377
Int. Cl. B01f 15/02, 13/02, 5/04
U.S. Cl. 99—60 5 Claims



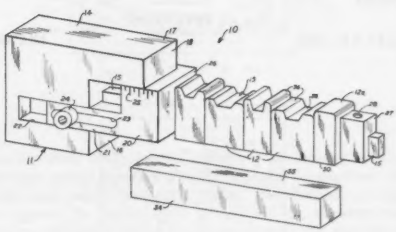
A static whipping apparatus, preferably for whipping animal or vegetable fat cream, including a large refrigerated storage vessel, a pump for pumping therefrom to a gas injection chamber where gas is injected in a plurality of streams, and then to a static whipping tube having irregular impediments of synthetic resin therein.

3,810,416

KEY-MODE APPARATUS AND SYSTEM

David E. Nelms, Jr., 6454 Lexleigh Rd., Reynoldsburg, Ohio

Continuation-in-part of Ser. No. 126,177, March 19, 1971, abandoned. This application Aug. 21, 1972, Ser. No. 282,589
Int. Cl. B23q 35/42
U.S. Cl. 90—62 R 7 Claims

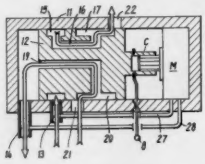


Apparatus and system is provided for enabling forming of lock keys on key duplicating machines. The apparatus includes a key-mode apparatus that has a structural frame and a number of bits from which are selected those that form the specific key desired to be formed. The selected bits are mounted on the frame in a particular relationship to a reference point with the apparatus then positionable in a key duplicating or cutting machine where a key blank may be cut in direct correspondence. Selection of the bits is based on a system of code identification that is related to the bit configuration.

3,810,417
METHOD AND APPARATUS FOR PRODUCING VIBRATORY MOTION

Helmut Sieke, 3001 Wulferode An der Trift 5, Wulferode, Germany

Filed Jan. 31, 1972, Ser. No. 222,163
Int. Cl. F15b *21/02*
U.S. Cl. 91—39 **10 Claims**

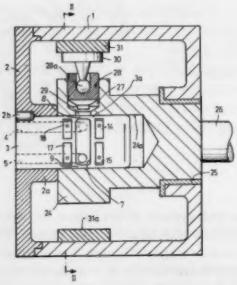


A method and apparatus for producing vibratory movement comprises a work piston reciprocable in a work cylinder, a supply of fluid under pressure and a slide valve for controlling the supply of pressure fluid to reciprocate the pistons. In one form the slide valve has a cylindrical housing and a piston that is rotatable by a motor to supply pressure fluid intermittently to the work cylinder and is axially movable manually, mechanically, hydraulically, electrically or by other power equipment to control the area the valve ports are opened and hence the rate of movement of the work piston. In another form the slide valve has a housing and a valve piston that is reciprocable by a cam wheel to supply pressure fluid intermittently to the work cylinder and is rotatable manually, mechanically, hydraulically, electrically or by other power equipment to vary the opening of the valve ports and hence the rate of movement. Selective action of the slide valve is obtained by providing two cam wheels of different characteristics and air springs for biasing the valve slide toward one or the other cam wheel.

3,810,418
CENTER RING ARRANGEMENT FOR A RADIAL PISTON MACHINE

Paul Bosch, Ludwigsburg, Germany, assignor to Robert Bosch, GmbH, Stuttgart, Germany

Filed June 27, 1973, Ser. No. 373,961
Claims priority, application Germany, Aug. 12, 1972, 2239757
Int. Cl. F01b *13/06*
U.S. Cl. 91—484 **10 Claims**

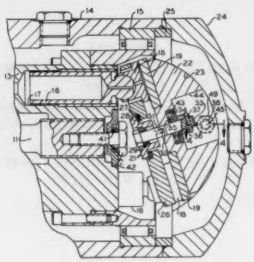


The rotary cylinder block of a radial piston machine surrounds a control member whose outer surface has high pressure ports and low pressure ports communicating with the cylinders during rotation. The outer cylindrical surface of the control member also has a pair of circumferentially aligned first and second high pressure balancing grooves on either side of the high pressure ports and a pair of circumferentially aligned first and second low pressure balancing grooves on either side of the low pressure ports. The control member is formed with preferably straight diametrical ducts connecting the first and second high pressure balancing grooves with the first and second low pressure balancing grooves located on the same side of the high pressure and low pressure ports, respectively. The high pressure balancing grooves and the low pressure balancing grooves are filled, respectively, with high pressure fluid and low pressure fluid from the high pressure and low pressure ports, respectively, through the gap between the inner surface of the cylinder block and the outer surface of the control member so that the pressure fluid in the balancing grooves substantially centers the cylinder block on the control member.

3,810,419
ADJUSTABLE FIXED DISPLACEMENT HYDRAULIC TRANSDUCER APPARATUS

Gary C. Smith, Westerville, Ohio, assignor to Abex Corporation, New York, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,321
Int. Cl. F01b *13/04*
U.S. Cl. 91—505 **2 Claims**



Fixed displacement hydraulic transducer apparatus of axial piston type having a rotatable piston barrel mounted within a body, a rocker cam defining a swash plate mounted in pivotable relation within a cam cradle defined within the body, and a plurality of pistons axially mounted within the piston barrel and abutting the swash plate. The pistons are adapted to reciprocation upon rotation of the barrel relative to the swash plate. The rocker cam may be pivoted to any angle relative to the axis of the pump from a maximum angle in one direction through a zero deviation to a maximum angle in the other direction to provide a constant rate of fluid displacement through the apparatus which is adjustable to a maximum rate from a minimum rate to a maximum rate in either direction. Anchor means are provided in association with the rocker cam and the body to fix the rocker cam at any position within its range of adjustment in a manner permitting the apparatus to be operated at a corresponding rate of fluid displacement.

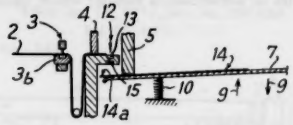
3,810,420
MACHINES FOR THE MANUFACTURE OF PLASTIC BAGS

Leon Ravel, Sainte-Sigolene, France, assignor to Georges Lagain, Argenteuil, France

Filed Apr. 10, 1973, Ser. No. 349,735
Claims priority, application France, Apr. 11, 1972, 72.13669
Int. Cl. B31b *1/64, 1/98*
U.S. Cl. 93—93 HT **5 Claims**

A bag making machine for making plastic bags, gussetted or non-gussetted, from lay-flat plastics tubing in which the tubing

is sealed and cut into bags and stacked on a pivotable platform by being clamped under an extension of the lower sealing jaw.

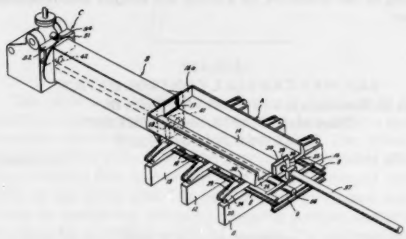


This jaw extension has a sealing electrode energized to seal the various bags of the stack to one another.

3,810,421
SCRAP FEEDING APPARATUS

Fred E. Mosley, Waco, Tex., assignor to Mosley Machinery Co., Inc., Waco, Tex.

Filed Sept. 18, 1972, Ser. No. 290,263
Int. Cl. B30b *15/08*
U.S. Cl. 100—95 **4 Claims**

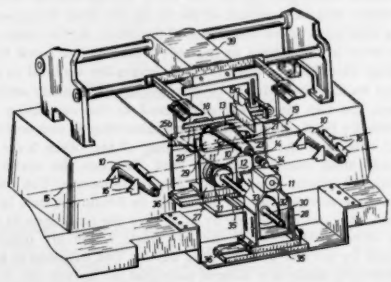


An indexing-type delivery device for interposition between a receiving chamber for material, such as scrap metal, and a device, such as shears, for acting upon or conditioning the material. The delivery device is rotatably mounted and has a pair of compartments for serially receiving the material from the reception chamber whereby the feed to the conditioning device may be substantially independent of the discharge of the material into the receiving chamber.

3,810,422
SCREEN PRINTING MACHINE FOR ARTICLES WITH CURVED NON-CIRCULAR CROSS-SECTIONAL

Wilfried Kammann, Buende-Suedlengern, Germany, assignor to Firma Werner Kammann, Westfalen, Germany

Filed Apr. 29, 1971, Ser. No. 138,676
Claims priority, application Austria, Apr. 30, 1970, 3980/70
Int. Cl. B41f *17/00*
U.S. Cl. 101—40 **6 Claims**

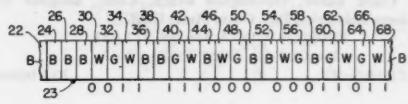


A screen printing machine includes holding members for holding articles to be printed and for transporting the articles to a printing station. The holding members are adapted to execute pivotal movement about an axis to transport the article to the printing station. The article is transported to the holding device by a conveyor mechanism, which conveyor mechanism is also adapted to receive the articles after they have been printed and released by the holding members.

3,810,423
COLOR BAR PRINTER

Raymond J. Hansen, Centerville; Ella B. Spialter, Dayton; Robert M. Whitely, Dayton, and Ning Wu, Dayton, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed July 31, 1972, Ser. No. 276,352
Int. Cl. B41f *1/44;* **B41j** *5/44;* **S41j** *33/00*
U.S. Cl. 101—93 C **11 Claims**

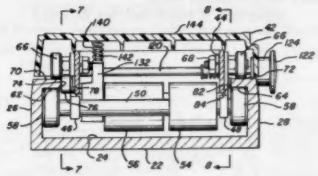


There is described a printer used in printing a three color transition bar code. The printer overprints a single color on a preprinted medium having alternating bars of the second and third colors thereon. The printer includes a printing station, a detector to determine which preprinted color is then aligned with the printing station, and logic means to determine if the printing station should overprint the preprinted color.

3,810,424
BI-DIRECTIONAL IMPRINTER

William P. Barbour, Gaithersburg, Md., assignor to Control Data Corporation, Minneapolis, Minn.

Filed May 2, 1973, Ser. No. 356,686
Int. Cl. B41f *3/04*
U.S. Cl. 101—269 **16 Claims**



An imprinter according to the present disclosure comprises a carriage nested between a pair of parallel longitudinal rails having upper and lower track surfaces. Wheels on the carriage bear against the lower track surface during an imprinting stroke so that mechanical forces created by the reaction of roller platens supported by the carriage bearing against a sheet or sheet set overlying printing plates are transferred to the wheels and lower track surface. One feature of the apparatus resides in the fact that an imprinting stroke may be accomplished upon movement of the carriage in either direction between the ends of the base. Another feature of the apparatus is a latch mechanism to lock the carriage at a rest position at either end of the base. Yet another feature of the apparatus resides in the provision of separately mounted roller platens to bear against the sheet being imprinted at the region of each of individual ones of a plurality of printing plates; an example being two separate roller platens to imprint from a dealer's plate and a credit card, respectively.

3,810,425
METHOD OF BLASTING WITH AN NH_4NO_3-NITROPROPANE BLASTING AGENT

John R. Post, P.O. Box 1134, Littleton, Colo.

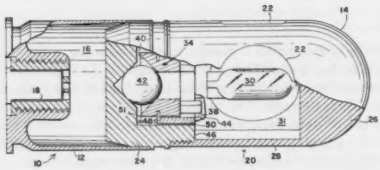
Filed Dec. 4, 1972, Ser. No. 311,935
Int. Cl. C06c *13/00*
U.S. Cl. 102—23 **10 Claims**

Crushed ammonium nitrate fueled with the proper nitropropane lower alcohol mix is a non cap-sensitive, field-mixable blasting agent that produces two to four times the detonation pressure obtainable with AN/FO, when loaded to densities between 1.10 and 1.55 by use of a simple over-hole mechanical device.

3,810,426
GUN LAUNCHED TRAINING PROJECTILE

Alan Clark Baker, Huntington Beach, Calif., assignor to Celesco Industries, Inc., Costa Mesa, Calif.

Filed July 9, 1973, Ser. No. 377,431
Int. Cl. F42b *13/20, 13/36, 13/42*
U.S. Cl. 102—87 **13 Claims**

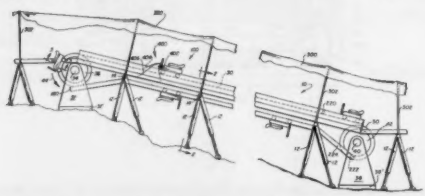


A flashcube is mounted in the body of a marking projectile. Upon impact of the projectile, a hammer drives actuating fingers into the base of the flashcube to fire the flashlamps and provide an impact signal.

3,810,427
SKI LIFT

Truman C. Peck, Bloomington, Minn., assignor to Alpine Valley Resort, Inc., Milford, Mich.

Filed Oct. 3, 1969, Ser. No. 863,462
Int. Cl. B61b *9/00*
U.S. Cl. 104—173 **4 Claims**



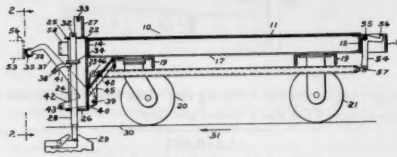
A ski lift is provided having cars riding in a track up the slope by means of a rope trained about two wheels at opposite ends of the slope. The cars are manually engaged with the rope but are so designed that they may not be manually disengaged from the rope during their upward travel.

3,810,428
SUBFLOOR CONVEYOR TOW TRUCKS

Paul Klamp, 22730 St. Joan Ave., St. Clair Shores, Mich.

Filed Mar. 13, 1972, Ser. No. 233,908
Int. Cl. B65g *17/42*
U.S. Cl. 104—172 BT **7 Claims**

The invention relates to subfloor conveyor tow trucks which are propelled by an endless chain with equally spaced pusher dogs, said chain and pusher dogs being positioned below floor level, while each tow truck is equipped with a tow pin which projects downward through a slit in the floor and is adapted to be engaged by one of the pusher dogs in order to propel the tow truck along the path the chain, where each tow truck is equipped with an accumulation bumper which, upon contact

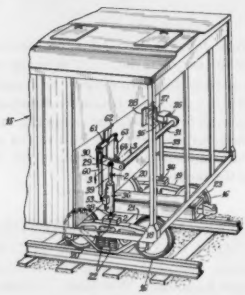


with a stationary tow truck or other obstruction, lifts the tow pin clear of the pusher dog, the tow truck being featured, according to the invention, by a novel and simpler anti-rebound device.

3,810,429
RAILWAY CAR ROLL CONTROL DEVICE

Ralph M. Kallenbach, 915 Carol Ave., Elgin, Ill.

Filed May 19, 1972, Ser. No. 255,109
Int. Cl. B61f *3/02, 5/24, 5/50*
U.S. Cl. 105—199 A **13 Claims**

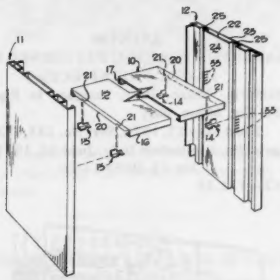


In one embodiment of the roll control device two levers positioned at opposite sides of the end of a car body are pivotally connected to the car body for movement about a common axis. At one side of the body, the lever is connected by a rigid strut to the side frame of the truck. At the other side, the lever is connected to the side frame of the truck by an energy absorbing device. The two levers are secured to each other so that they always pivot together. In another embodiment, the two levers are connected to the respective side frames by rigid struts. The pivotal mounting of one lever is a first shaft and the pivotal mounting of the other lever is a second shaft coaxial with the first. Between the shafts and coaxial therewith is an energy absorbing device. The energy absorbing devices can be hydraulic or frictional; but, in any event, they are adjustable so as to vary the resistance to relative movement between the two parts which are interconnected by the energy absorbing device. The adjustment is automatically made in a manner such that the heavier the weight that the car is carrying the greater the resistance and the less the weight the less the resistance. An automatic adjusting device is connected between the truck side frame and the car body to sense the deflection of the springs in the trucks caused by the load in the car body and thus signifying the weight of the load and making the adjustment accordingly.

3,810,430
SHELF ASSEMBLY

Burton L. Siegal, Chicago, Ill., assignor to Tiffany Industries, Inc., St. Louis, Mo.

Filed Oct. 16, 1972, Ser. No. 297,664
Int. Cl. A47b 57/10
U.S. Cl. 108—144 10 Claims

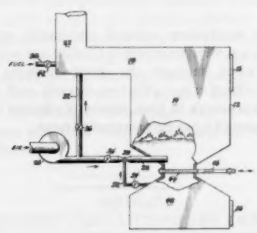


This shelf assembly includes a unitary shelf, which is adjustably supported between vertical end panels by a pair of brackets detachably attached to each panel. The panels include opposed pairs of vertical grooves, each groove providing a bearing face at one side, and vertically spaced seating slots at the other side. The brackets are ell-shaped and include an upright leg providing a bearing portion, and an outstanding leg providing a seating portion. The outstanding leg is wider than the groove, and the brackets are attached to the panel by inserting the outstanding leg seating portion into a slot at one side of the groove, and rotating the upright leg into bearing relation with the other side of the groove.

3,810,431
RECIRCULATION OF GASES GENERATED IN ASH PIT

Lloyd L. Lavely, Jr., and Noel D. Hazzard, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Mar. 29, 1973, Ser. No. 345,935
Int. Cl. F23g 5/12
U.S. Cl. 110—8 A 6 Claims

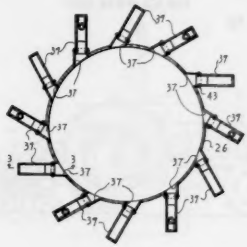


A grateless incinerator with a controlled atmosphere having a pyrolyzation chamber, an afterburner chamber that is downstream therefrom, and an ash discharge chamber subjacent the pyrolyzing chamber. Ash from incinerated refuse in the pyrolyzing chamber may be quickly dumped to the ash discharge chamber and a new charge of refuse placed back in the pyrolyzing chamber. Any smoke, dust or fumes generated by the hot ash in the ash discharge chamber is allowed to vent to an underfire air inlet to the pyrolyzation chamber.

3,810,432
APPARATUS FOR BURNING REFUSE

Edward T. Douglass, Jr., 2769 5th Ave. South, Birmingham, Ala.

Filed June 28, 1973, Ser. No. 374,470
Int. Cl. F23g 5/00, 9/00
U.S. Cl. 110—18 R 3 Claims

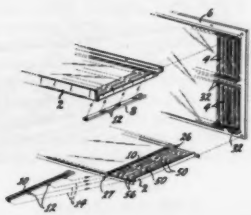


A plurality of outwardly and downwardly extending hollow housings extend outwardly from a chimney structure, having a stack and a combustion chamber and communicate with an annular row of tangential air receiving openings through the structure which impart an upward spiral movement to ascending gases and solids discharged from the combustion chamber. Each hollow housing has a depending outer wall with the lower portion thereof spaced horizontally from the inlet for a tangential opening and terminating below and in spaced relation to the tangential opening.

3,810,433
PRINTED CIRCUIT CARD GUIDE

John David Posner, San Diego, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Filed Aug. 9, 1972, Ser. No. 278,893
Int. Cl. H02b 1/02
U.S. Cl. 211—41 2 Claims



Guide-piece for sliding and aligning printed circuit boards into their proper positions when being plugged into a computer back panel, including in one embodiment a full-length slot for the circuit card, a trunnion for surrounding the back panel plug to ensure that the slot will guide the circuit card directly to the plug, and a self-attaching mechanism to allow the guide to be firmly affixed to the computer main frame.

3,810,434
AGRICULTURAL CULTIVATOR AND SEED FRILL COMBINATIONS

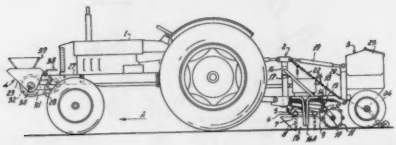
Ary van der Lely, 10, Weverskade, Maasland, and Cornelis Johannes Gerardus Bom, 36, Esdoornlaan, Rozenburg, both of Netherlands

Filed Apr. 14, 1972, Ser. No. 244,048

Claims priority, application Netherlands, Apr. 21, 1971, 7105355

Int. Cl. A01c *7/08*

U.S. Cl. 111—10 **1 Claim**



Combinations of agricultural implements are mounted to the front and rear of a tractor. The front of the tractor pushes a fertiliser preferably having its own source of power, to operate the delivery device. At the rear of the tractor is a cultivator with a plurality of soil working members that are rotatably connected to the power take off of the tractor. The cultivator is connected to a lifting hitch and a seed dispenser is pivotably connected to the rear of the cultivator and also connected to the upper point of the lifting device. Flexible chains interconnect the seed dispenser with the upper lifting point so that the dispenser can be raised with the cultivator by the lifting device. The dispenser is mounted on ground wheels which can power the operation thereof. At the rear of the cultivator a soil engaging roller is mounted which regulates the working depth of the cultivator and smooths the soil.

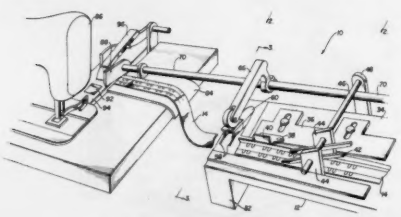
3,810,435
APPARATUS FOR MAKING A FASTENER SECTION FOR SECURING ELASTIC MATERIAL THERETO

Jack Simon, Rye, N.Y., assignor to L. M. Rabinowitz & Company, New York, N.Y.

Filed Sept. 26, 1972, Ser. No. 289,710

Int. Cl. D05b *3/18*

U.S. Cl. 112—105 **8 Claims**



An apparatus comprising means for feeding a continuous rectangular shaped strip of tape, having eyelet fasteners secured thereto, with one edge of said tape having two separate folds, said apparatus having separating means to lift the upperfold to separate it from the lower fold. The apparatus is further provided with cutting means for making spaced parallel slits in the lower folded edge. Knife means are provided for cutting the continuous tape into individual pieces. Feed means are provided for feeding the individual pieces at right angles to the initial direction of travel of the continuous tape and sewing means are provided for sewing the opposite edges of the individual pieces into a continuous strip so that the finished product has transversely extending spaced parallel double folds for insertion of an elastic strip to be sewed therebetween.

3,810,436
APPARATUS FOR FORMING PATTERNED SEAMS IN FABRIC WORKPIECES

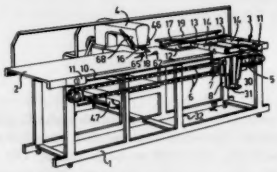
Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & Co., Milan, Italy

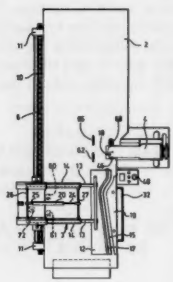
Filed May 17, 1972, Ser. No. 253,973

Claims priority, application Italy, June 17, 1971, 25942/71

Int. Cl. D05b *21/00*

U.S. Cl. 112—121.15 **1 Claim**





A cyclical workpiece control apparatus operatively associated with a sewing machine for holding a workpiece while moving the same through the stitch forming area of the machine and which is movable transversely with and while advancing the workpiece to form seams of stitches in accordance with the dictates of a predetermined pattern.

3,810,437
DEVICE FOR GUIDING AND PUTTING UNDER TENSION A BAND OF A SLIDING FASTENER

Guy S. P. Lacam, Paris, France, assignor to La Fermeture Ailee, Airaines, France

Filed Oct. 7, 1971, Ser. No. 187,437

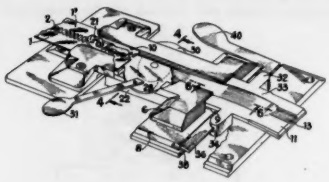
Claims priority, application France, Oct. 12, 1970, 70.36747; Aug. 11, 1971, 70.29337

Int. Cl. D05b *35/06*

U.S. Cl. 112—152 **13 Claims**

Device for guiding and putting under tension a band, such as a band of a sliding fastener, in the course of the stitching of

the band to a workpiece. The device comprises a bridge adapted to be fixed to a sewing machine in the vicinity of the stitching part of the machine, a spring strip for pressing the



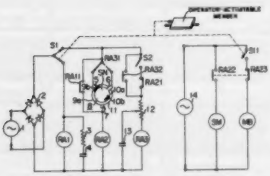
band against an upper wall portion of the bridge and means for progressively regulating the pressure exerted by the spring strip on the band.

3,810,438

FIXED POINT STOP MECHANISM FOR SEWING NEEDLE IN SEWING MACHINE

Masahiro Yokoyama, and Takanori Kobayashi, both of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 4, 1970, Ser. No. 86,692
Int. Cl. D05b *69/22*
U.S. Cl. 112—219 A **9 Claims**



A fixed point stop mechanism for selectively stopping an output member, such as a sewing needle in a sewing machine in one of a plurality of predetermined positions comprises a position sensing means for sensing the sewing needle being at a selected one of predetermined positions, means for driving the sewing machine at a low speed sufficient to render the position sensing device operative, a first relay connected in series to said position sensing device, and a second relay energized upon operation of the first relay thereby to cause a set position, in which the sewing needle is to be selectively stopped, to be changed over from one to another of the predetermined positions without stopping the rotation of the sewing machine.

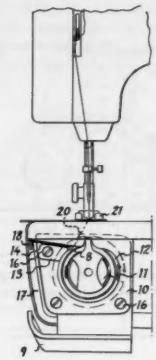
3,810,439

ARRANGEMENT FOR CUTTING THE THREADS IN A SEWING MACHINE WHEN CHANGING THE BOBBIN THREAD

Monica Linnea Giesselmann, Oxelgatan 3, 561 00 Huskvarna, Sweden

Division of Ser. No. 44,814, June 9, 1970, abandoned. This application Dec. 4, 1972, Ser. No. 311,640
Int. Cl. D05b *65/00*
U.S. Cl. 112—252 **3 Claims**

The changing or replenishing of the bobbin thread in a sewing machine in which the sewing is stopped while there is still bobbin thread in the machine, and the over thread is drawn up from the loop-taker mechanism by the thread take-up lever of the machine, with a full bobbin having a length of thread extending therefrom being placed in the machine and the ex-



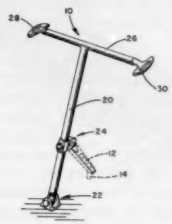
tending thread end is positioned together with the thread end remaining in the machine when making the change.

3,810,440

STEERING MECHANISM FOR SAILBOATS AND THE LIKE

Curtiss S. Johnson, Jr., Middle Haddam, Conn., assignor to C. Sherman Johnson Co., Inc., Middle Haddam, Conn.

Filed Jan. 17, 1972, Ser. No. 218,379
Int. Cl. B63h *25/06*
U.S. Cl. 114—162 **6 Claims**



A steering mechanism for a sailboat is formed by a tiltable, vertically mounted steering post which connects through the tiller to the boat rudder. The steering post is mounted to the deck or other portion of the boat by a universal joint which permits the post to be tilted relative to the vertical axis of the boat. A pivot joint connects the tiller to the steering post at a point midway between the ends of the post so that the tiller is moved by the tilting motions of the post. With the tiller connected to the post in this manner and the post mounted forward of the rudder along the center line of the boat, lateral tilting motions of the post swing the tiller and turn the rudder.

3,810,441

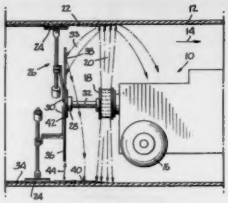
LINING MACHINE

Clifford A. Padgett, Lakewood, N.J., and Lester C. Slade, Escalon, Calif., assignors to Raymond International, Inc., New York, N.Y.

Division of Ser. No. 783,301, Dec. 12, 1968, Pat. No. 3,599,299. This application June 7, 1971, Ser. No. 150,333
Int. Cl. B05c *7/02, 11/04*
U.S. Cl. 118—105 **1 Claim**

A machine for applying a fluent lining material to the inside of a pipe which is arranged to be progressed through the pipe and which includes distributor means for slinging material in a

generally radial spray on the walls of the pipe, and spaced trowelling means for smoothing the lining material on the wall, and a diaphragm interposed between the distributor means



and the trowelling means for intercepting rebound particles and preventing them from imbedding in the freshly trowelled surface.

3,810,442

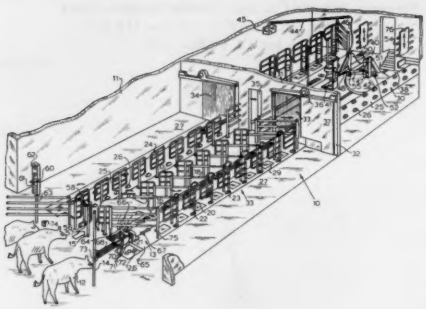
MILKING SYSTEM

Hubert Hudson Jacobs, and Virginia Michael Jacobs, both of 1035 Jacobs Rd., DeLand, Fla.

Filed Apr. 2, 1973, Ser. No. 347,162

Int. Cl. A01k *1/00*

U.S. Cl. 119—14.03 **22 Claims**



A milking parlor apparatus and method for milking large numbers of cows using a pair of batch loaded reciprocating shuttling platforms in which one platform is batch loaded and moved to a milking station where the cows are milked while a second parallel platform is being loaded. The second platform is moved to the milking station and the first platform returned to the original loading station and unloaded and reloaded, thereby delivering a continuous supply of cattle for milking. The milking station can utilize one operator for milking the cows on both shuttle platforms and the system avoids any electrical connections on the platforms.

3,810,443

PULSATOR UNITS OF MILKING MACHINES

Syd Ernest Bodmin, 39 Seaway Dr., Otumoetai, Tauranga, New Zealand

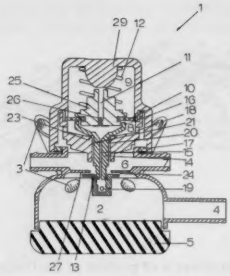
Filed June 14, 1972, Ser. No. 262,883

Claims priority, application New Zealand, June 17, 1971, 163990

Int. Cl. A01j *5/10*

U.S. Cl. 119—14.37 **1 Claim**

The pulsator unit is to be used in an installation with central evacuation and central milk storage, with only one line (for vacuum and milk) of piping. It is integral with the cluster. It operates by a driving diaphragm and a piston valve. It may



apply to the outside of the inflations a pressure less than atmospheric.

3,810,444

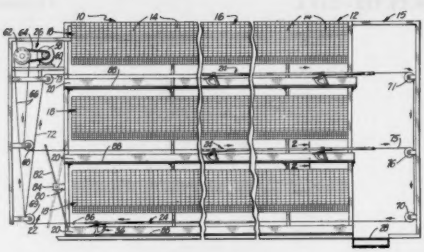
AUTOMATIC ANIMAL DROPPING PIT CLEANER

John L. Conley, 3870 Chino Ave., Chino, Calif.

Filed May 12, 1971, Ser. No. 142,518

Int. Cl. A01k *31/04*

U.S. Cl. 119—22 **3 Claims**



An automatic dropping pit cleaner for automated poultry handling systems and other automated animal handling systems. The pit cleaner has scrapers which are driven back and forth along a number of animal dropping pits by an automated driving mechanism to scrape animal droppings and other debris from the pit floors onto a conveyor at one end of the pits. Each scraper has a unique design including rocker shoes removable and rotatably mounted on the ends of a supporting bar to which is attached the scraper driving mechanism and a scraper blade extending between and removably attached to the rocker shoes in such a way that the scraper rocks to scraping position during movement toward the conveyor end of its pit and to retracted position during reverse movement of the scraper. The removable mounting of the rocker shoes permits the latter to be readily replaced when worn. The pit cleaner is designed primarily for use in an automated egg producing poultry handling system.

3,810,445

PARROT-STAND PERCH

Otto E. Stadler, Dufourstrasse 114, 9000 St. Gallen, Switzerland

Filed Nov. 13, 1972, Ser. No. 305,654

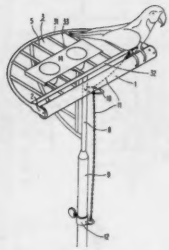
Claims priority, application Switzerland, Nov. 25, 1971, 17179/71

Int. Cl. A01k *31/12*

U.S. Cl. 119—26 **3 Claims**

A parrot-stand perch having a horizontally arranged member providing a walking area for a parrot and a vertically

arranged member disposed downwardly from and perpendicular to the horizontal member for providing a vertical climbing member for the parrot. An adjustable chain is provided depending from the central portion of the front edge of the horizontal member for increasing or decreasing the available area of movement of the parrot. The chain is adjustable by



means of a clamp releasably securable to the stand shaft supporting the perch so that as the clamp is moved up or down the shaft, the length of the chain above the horizontal member is increased or decreased accordingly. A guide ring is provided directly beneath the horizontal member to guide the chain and support it so as to prevent entanglement.

3,810,446

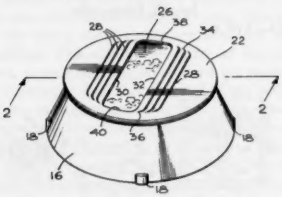
ANIMAL FOOD BOWL AND COVER THEREFOR

Ronald J. Kightlinger, 11917 Paso Robles Ave., Granada Hills, Calif., and Robert S. Goodrich, 27901 S. Golden Meadow Dr., Palos Verdes Peninsula, Calif.

Filed July 18, 1973, Ser. No. 380,149

Int. Cl. A01k *5/00*

U.S. Cl. 119—61 **10 Claims**



An animal food bowl and cover therefor are provided which have cooperating means as, for example, a bead and yieldable channel combination for releasably and rotatably securing the cover to the bowl. The cover has a limited access aperture which permits an animal with drooping ears to have access to food contained within the bowl while excluding the animal's ears from the contents of the bowl. In addition, the cover is provided with means to facilitate selective enlargement of the aperture which may take the form of score lines in the outer surface of the cover at successively increasing distances from the aperture. The bowl is provided with an outwardly disposed skirt which extends beyond the bottom of the bowl with the lower end of the skirt being provided with anti-skid means.

3,810,447

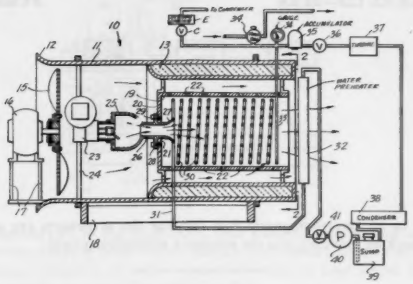
ANTI-POLLUTION STEAM GENERATION SYSTEM

Lewis M. D. Grainger, Rt. 1, Glen Allen, Va.

Continuation-in-part of Ser. No. 182,456, Sept. 21, 1971, Pat. No. 3,713,433. This application Nov. 9, 1972, Ser. No. 304,931

Int. Cl. F22b *21/28*

U.S. Cl. 122—248 **2 Claims**



An anti-pollution steam generation system including an outer housing and a secondary combustion chamber spaced inwardly therefrom. An oil burner including a primary combustion chamber is connected into the secondary combustion chamber to provide heat therein and an air fan provides a flow of air through the outer housing and around the secndary combustion chamber with a portion of the air flowing into the secondary combustion chamber through a plurality of apertures in the secondary combustion chamber. Steam coils in the secondary combustion chamber are heated to provide steam with a water pre-heater being positioned down stream of the secondary combustion chamber to be heated by the exhaust gases therefrom to provide heated water for the steam coils.

3,810,448

FUEL INJECTION SYSTEMS FOR INTERNAL COMBUSTION ENGINES

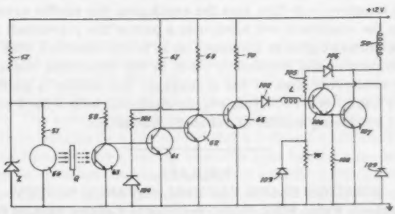
Eric Harold Ford, London, England, assignor to Lumenition Limited, London, England

Continuation-in-part of Ser. No. 874,470, Nov. 6, 1969. This application Nov. 29, 1971, Ser. No. 202,979

Claims priority, application Great Britain, Feb. 25, 1970, 9049/70; Great Britain, Sept. 22, 1970, 45148/70

Int. Cl. F02b *3/00*

U.S. Cl. 123—32 EA **24 Claims**

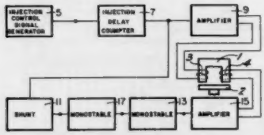


A device for generating a voltage pulse for use with a fuel injection system of an internal combustion engine utilizing infra-red radiation source and detector for obtaining a voltage pulse to operate the solenoids of the appropriate fuel injectors in cyclic order, which voltage pulse is timed from shutter means mechanically driven and interposed between the source and detector, transistorized circuitry including a plurality of transistors and a power transistor connected in cascade and inversely switched for fast switching the output from the detector in order to amplify it to operate the solenoid.

3,810,449
ELECTROMAGNETIC FUEL INJECTORS

Maurice Chollet, and Francois Denmat, both of Nantes, France, assignors to Societe Financiere Et Industrielle Des Ateliers, Nantes, France

Filed June 19, 1972, Ser. No. 264,329
Claims priority, application France, July 1, 1971, 71.24083
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **2 Claims**

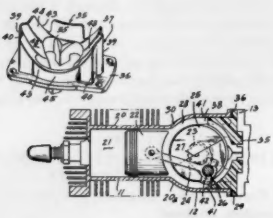


In an electromagnetic fuel injector the armatures are unstuck by inducing into the magnet a neutralizing field.

3,810,450
STUFFER FOR TWO-CYCLE ENGINES

John C. Woodhouse, Cheyenne, Wyo., assignor to Robert F. Deike, Cheyenne, Wyo.

Filed Aug. 29, 1972, Ser. No. 284,636
Int. Cl. F02b *33/04*
U.S. Cl. 123—73 A **4 Claims**



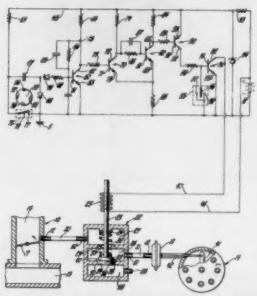
In two-cycle internal combustion engines where the mixture of gas and air is introduced from the carburetor to the crankcase, and thereafter flows from the crankcase to the combustion cylinder, a stuffer is provided surrounding the inlet from the carburetor to the crankcase in a manner which does not interfere with flow into the crankcase, the stuffer extends into the crankcase and surrounds a part of the crankshaft and its counterweights in a manner so as to not interfere with the operation of the crankshaft while at the same time reducing the volumetric area of the crankcase. The stuffer is particularly useful in a two-cycle engine equipped with a back pressure producing muffler or exhaust constriction.

3,810,451
IGNITION SPARK VACUUM ADVANCE SYSTEM

Douglas I. Fales, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1971, Ser. No. 209,281
Int. Cl. F02p *5/08*
U.S. Cl. 123—117 A **5 Claims**

An ignition spark vaccum advance system for use with motor vehicle internal combustion engines. The collector-emitter electrodes of a switching transistor are connected in series in the energizing circuit of the operating coil of a two-way valve which normally establishes a vacuum connection between the carburetor vacuum spark advance port and the associated spark advance vacuum unit vacuum port and, upon the energization of the operating coil, vents the spark advance vacuum unit vacuum port to atmosphere. A trigger circuit responsive to a reference potential signal of a magnitude proportional to vehicle or engine speed produces a control signal during vehicle acceleration until the vehicle has accelerated to a speed of a selected magnitude and during vehicle deceleration after the vehicle has decelerated to a speed less than the selected magnitude which triggers the switching transistor conductive to complete the energizing circuit for the valve

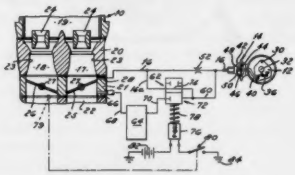


operating coil. The current carrying elements of a temperature sensitive switch which are operated to the circuit closed condition with engine temperatures less and greater than a selected engine temperature range are connected across the base-emitter electrodes of the switching transistor to provide for a normal ignition spark vacuum advance at any engine speed with a cold engine or an engine approaching over-heating.

3,810,452
ENGINE SPARK TIMING SYSTEM CONTROL

Thomas H. Morris, Southgate, and Tao-Yuan Wu, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 8, 1972, Ser. No. 232,808
Int. Cl. F02p *5/04*
U.S. Cl. 123—117 A **23 Claims**



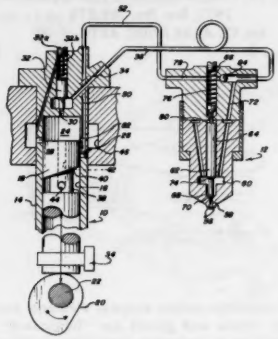
An engine spark timing control system includes a distributor servo actuator that normally advances the engine timing as a function of carburetor spark port vacuum changes, and retards the spark by means of a spring during acceleration and deceleration modes of operation; and additionally includes a control to temporarily advance the spark timing setting during acceleration modes of operation, with a built-in means to automatically return the spark timing setting to a level normally called for by the spark port vacuum after a predetermined adjustable time delay.

3,810,453

FUEL INJECTION SYSTEM

George D. Wolfe, 1512 Avenue F, NE, Winter Haven, Fla.

Filed Oct. 18, 1971, Ser. No. 190,142
Int. Cl. F02m 47/02
U.S. Cl. 123—139 R 13 Claims



A fuel injection system for achieving a more complete and efficient combustion of the injected fuel and avoiding the problems associated with low residual line pressure in the system, such as cycling and cavitation erosion. Fuel is pumped in cyclic pressure pulses from a pump to an injection nozzle controlled by a spring loaded pressure responsive valve which is moved to an open fuel discharging position when the pressure of fuel within a discharge chamber overcomes the biasing force of the valve spring. A second chamber in the nozzle is located to apply pressure to the opposite side of the valve to augment the spring force urging the valve to its closed position. During the initial portion of each pressure pulse generated by the fuel pump, the entire pulse is conducted at full pump pressure to the discharge chamber, thereby opening the valve and discharging fuel from the nozzle to the firing chamber of the engine. At an adjustably selected point in the pressure generating portion of each pump cycle, the second chamber in the nozzle is connected to the pump chamber so that the two chambers at opposite sides of the valve are in fluid communication with the pump. At the instant the second chamber is connected to the pump, a positive pressure wave travels to the second chamber from the pump, thus temporarily dropping the pump output pressure until the system can become equalized. This sudden dropping of the pump pressure, in effect, transmits a negative pressure wave from the pump to the discharge chamber. Arrival of the positive pressure wave at the second chamber develops a pressure acting against the valve in a direction augmenting the spring force of the valve. The valve will move to its closed position when the sum of the spring force and pressure force exerted in the second chamber exceeds the opposing pressure force exerted on the valve by the pressure in the discharge chamber. In order to close the valve while the pressure in the discharge chamber is still at, or close to the full pump pressure, the fluid path between the pump and discharge chamber is of a greater length than the fluid path from the pump to the second chamber.

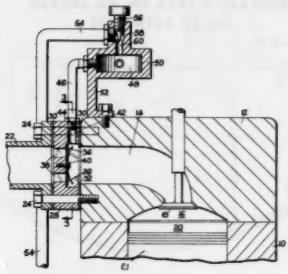
3,810,454

POLLUTION FREE FUEL INLET SYSTEM FOR INTERNAL COMBUSTION ENGINES

John Hunt, 8030 S.E. Barbara Welch Rd., Portland, Oreg.

Filed Sept. 25, 1972, Ser. No. 291,985
Int. Cl. F02m 17/00, 23/04
U.S. Cl. 123—142 4 Claims

A reed valve is provided between the intake manifold of an internal combustion engine and the combustion chamber, allowing flow of air fuel mixture from the manifold into the combustion chamber and preventing backflow. An air inlet from an outside source is provided on the combustion chamber side of the reed valve, thus allowing free flow of an auxiliary supply of air under vacuum conditions into the combustion chamber. A valve is provided in the air inlet means to control the amount of auxiliary air flow.



ERRATUM

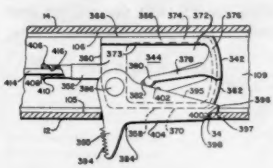
For Class 126—190 see:
Patent No. 3,810,483

3,810,455

PNEUMATIC GUN WITH POLYGONAL CROSS-SECTION BOLT MEMBER

Lee F. Garmon, Jr., Rogers, Ark., assignor to Victor Comptometer Corporation, Chicago, Ill.

Filed June 16, 1972, Ser. No. 263,628
Int. Cl. F41b 11/00
U.S. Cl. 124—13 A 11 Claims



There is herein disclosed a pneumatic gun of the type having an air storage chamber selectively connectable to a firing chamber by a valve. The valve is movable between a closed position and an open position by a trigger actuated control lever. The control lever is movable between cocked and uncocked positions by a manually slidable bolt and is latched in a cocked position by a spring loaded trigger having a latching finger in constant abutting engagement with the control lever. Regarding the manually slidable bolt, this bolt has a polygonal cross-section with which to slidably fit onto a polygonal trackway. There is a lost motion connection between the control lever and the valve such that the valve is openable by the combined effects of air pressure and a spring by movement relative to the control lever. The storage chamber is formed between cylindrical block members held in spaced relationship in a common cylinder. A combination check valve and sealing annulus is compressibly mounted between the block members. A piston assembly is also mounted in the common cylinder and connected to a piston rod by a lost motion connection enabling movement of the piston assembly relative thereto under the influence of a resilient compressible annulus.

3,810,456

ABORTIFACIENT

Harvey Karman, Playa Del Rey, Calif., assignor to Medical Concepts, Inc., El Segundo, Calif.

Filed Apr. 3, 1972, Ser. No. 240,529
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R 3 Claims

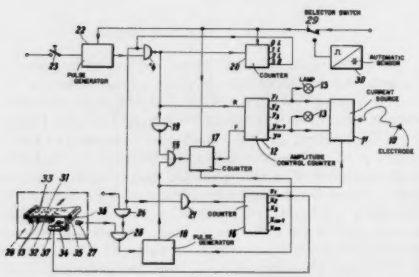
An intrauterine device for use as an abortifacient, a method of making the device, and method of inducing an abortion. The device is a strip or ribbon of plastic material set in a coiled configuration. The coiled strip retains a memory of its generally circular form and tends to maintain a coiled planar configuration after insertion into the uterus.

3,810,457

DIAGNOSTIC APPARATUS FOR AUTOMATICALLY GENERATING AN INTENSITY-TIME DIAGRAM SHOWING POINTS OF MINIMUM INVOLUNTARY MUSCLE MOVEMENT

Lutz Bottcher, and Karl-August Heyne, both of Berlin, Germany, assignors to Robert Bosch Elektronik GmbH, Berlin, Germany

Filed Oct. 27, 1972, Ser. No. 301,675
Claims priority, application Germany, Nov. 24, 1971, 2158132
Int. Cl. A61b *5/05*
U.S. Cl. 128—2.1 R 27 Claims



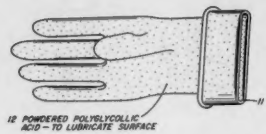
Both amplitude and pulse width of pulses applied to the muscle are varied automatically, a given number of pulses being applied at a given amplitude and pulse width prior to increasing the amplitude. The given number varies with the pulse width. The amplitude is increased until involuntary muscle movement results. The same procedure is repeated at the subsequent pulse width.

3,810,458

MINIMIZING TISSUE REACTION TO GLOVE POWDER

Bernard Albert Semp, Richmond, Va., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 117,998, Feb. 23, 1971, Pat. No. 3,728,739, which is a continuation-in-part of Ser. No. 770,792, Oct. 25, 1968, abandoned. This application Apr. 10, 1973, Ser. No. 349,875
Int. Cl. A41d *19/00*; A61b *19/00*
U.S. Cl. 128—1 R 11 Claims



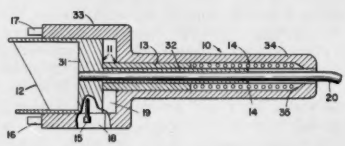
Natural or synthetic rubber surgical elements such as tubing, catheters, drains and gloves are "lubricated" so as to prevent sticking during storage, and permit easier emplacement, such as putting on the gloves by a surgeon or nurse, by applying to the surface of the rubber element finely divided polyglycolic acid powder. The polyglycolic acid powder is readily absorbed by living tissue without deleterious tissue reaction, thus minimizing tissue reaction from the transfer of the powder from the element such as a glove to internal sites in a subject. The rubber surgical elements are conveniently stored in a strippable package. Polyglycolic acid aids in reducing infection and promotes healing, when in contact with tissue.

3,810,459

TRANSCUTANEOUS BLOOD VESSEL PROBE WITH RELOCATION MARKER

Gerald O. Becker, Blackstone, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Apr. 27, 1972, Ser. No. 250,090
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 Z 4 Claims



An external physiological sensor probe in which a transducer responsive to in vivo physiological signals is placed in an appropriate position on the body. The transducer is mounted in a housing to permit placement of the transducer next to the skin or in contact with the skin if necessary. A marker member or element is slideably mounted on the transducer housing and resiliently urged to a position distal of the transducer. The marker member acts as a handle and may be placed in contact with the body upon application of a certain predetermined force. The marker member produces an indication on the body as to the position of probe as well as its alignment thereby enabling its positioning in the exact same location at a remote time.

3,810,460

DETECTOR FOR PHYSIOLOGICAL QUANTITIES

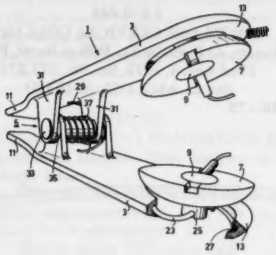
Cornelis Pieter Van Nie, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 13, 1972, Ser. No. 297,243

Claims priority, application Netherlands, Oct. 23, 1971, 7114606

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 E 10 Claims



A device for detecting physiological quantities, comprising two hinged arms which are provided on their end with freely movable end members. When a part of the body, for example, an ear lobe, is clamped between the end members, the latter will be immovably retained in a mount.

3,810,461

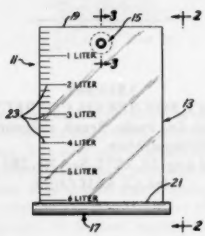
DISPOSABLE PULMONARY FUNCTION KIT

James B. McCormick, Hinsdale, Ill., assignor to American Health, Inc., Hinsdale, Ill.

Filed Sept. 11, 1972, Ser. No. 287,766

Int. Cl. A61b 5/08

U.S. Cl. 128—2.08 6 Claims



A disposable pulmonary function kit for use in post-surgical lung exercise and in testing lung capacity by exhaling into an inflatable bag having an input tube with valve means which, in one embodiment, is manually operable to close off the bag. The bag may then be rolled from one end, or separate means moved along the length of the bag, until the portion of the bag retaining the gas therein is taut whereupon the volumn of gas within the bag may be read from calibrations on the bag.

3,810,462

SELF-RETAINING SURGICAL RETRACTOR

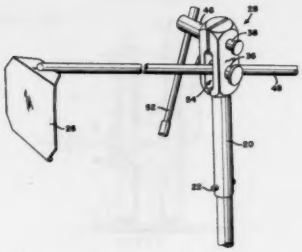
Roman Szpur, Dayton, Ohio, assignor to Medicotech Company, Dayton, Ohio

Filed Mar. 5, 1973, Ser. No. 337,835

Int. Cl. A61b 17/02

U.S. Cl. 128—20 11 Claims

A self-retaining surgical retractor having a retractor holder adapted to be attached to the side rail of an operating table. A retractor blade on a handle is attached to the retractor holder by means of a clamp head which permits four-way movement of the retractor blade for easy positioning. The clamp head



may be locked easily and quickly with a single adjustment. The retractor blade is thereby held steady in all planes to provide steady consistent retraction.

3,810,463

APPARATUS FOR PEDICURE

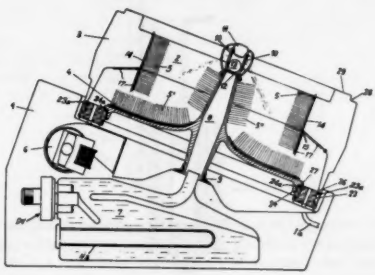
Leo Krummenacher, Luzernerstrasse 36, Ebikon, Switzerland

Filed Sept. 8, 1972, Ser. No. 287,334

Claims priority, application Switzerland, Sept. 9, 1971, 13282/71

Int. Cl. A61h 7/00

U.S. Cl. 128—56 21 Claims



A rotary foot treatment arrangement having a basin within which a plurality of brush elements are rotatable about a central column from which treating fluid is directed onto feet within the basin and subjected to action of the brushes while undergoing the fluid treatment as well.

3,810,464

WHIRLPOOL BATH UNIT

William Sheeler, Brooklyn, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

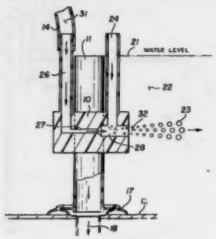
Filed July 17, 1972, Ser. No. 272,565

Int. Cl. A61h 9/00

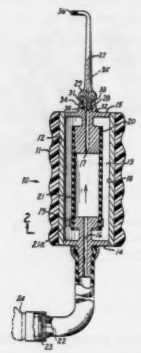
U.S. Cl. 128—66 2 Claims

A whirlpool bath unit in which aerated water is circulated in a bathtub. The incoming water flows through a restricted orifice in a jet mixer unit to form a narrow jet stream which is directed into a larger final orifice and then into the bathtub. An air passage led into said larger final orifice of the jet mixer unit draws air that is sucked by the jet stream of water. The

combination of air and jet stream is directed into the bathtub to form a circulating whirlpool. The bathtub level is maintained at a constant level by a suitably located vertical tube mounted over the bathtub drain, with the jet mixer unit fastened to said vertical tube.

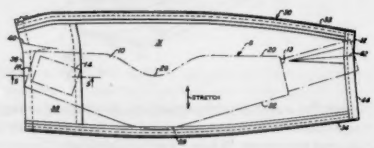


3,810,465
PULSATING SYRINGE
John W. Lambert, 18815 Milton Dr., Glendora, Calif.
Continuation-in-part of Ser. No. 110,094, Jan. 27, 1971, abandoned. This application Feb. 18, 1972, Ser. No. 227,379
Int. Cl. A61h 9/00
U.S. Cl. 128—66 **13 Claims**



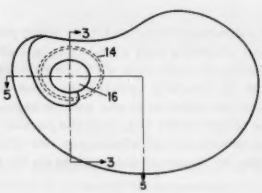
A hydraulic oscillator which produces a pulsed output from a steady flow input. The oscillator utilizes a rigid pressure chamber containing a charge of gas under pressure. A conduit passes through this chamber, and the conduit includes an inlet passage, an outlet passage and, interconnecting and extending between these passages, a flexible, resilient, collapsible-walled tubular portion. The outside of this portion is fully peripherally exposed to gas pressure in the chamber. When the impedance and resistance to liquid flow through the inlet and outlet passages, the elasticity and dimensions of the tubular portion, and the gas pressure in the chamber, are appropriately selected, then a liquid stream entering the inlet passage at a suitable pressure relative to the chamber pressure, will emerge as a pulsating flow. This pulsating flow is particularly suited to many purposes, including the cleaning, irrigating and massaging of biological living tissue, the creation of cavitation in a flowing stream, and the momentary and cyclical reversal of the direction of flow in a generally forwardly flowing system. Systems for utilizing this oscillator for these purposes are disclosed.

3,810,466
COVER FOR CERVICAL COLLARS
Betty W. Rogers, 43 Franklin St., Wilkes-Barre, Pa.
Filed Aug. 4, 1972, Ser. No. 277,879
Int. Cl. A61h 1/02; A61f 5/01
U.S. Cl. 128—75 **10 Claims**



A cervical collar enclosed in a normaly closed tubular cover that encases the collar along its length while leaving the ends of the collar exposed so that the collar ends can be attached to each other. The cover is formed of a one-way stretch material that is stretchable transversely of the length of the cover and the collar.

3,810,467
DEVICE FOR HERNIA CORRECTION
Luigi Frankenthal, Sao Paulo, Brazil, assignor to Dow Corning Corporation, Midland, Mich.
Filed Aug. 31, 1972, Ser. No. 285,270
Int. Cl. A61f 13/00
U.S. Cl. 128—95 **1 Claim**



Surgically implantable device for hernia correction comprising a plate having a pair of partially overlapping resilient hooks formed integrally therewith and defining an orifice through the plate. In use, the hooks are spread apart allowing the esophagus or inguinal canal to be placed in the orifice; the hooks close and retain the device in position to close the hernia.

3,810,468

SORBENT

Billy G. Harper; Robert N. Bashaw, and Bobby L. Atkins, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 553,684, May 31, 1966, Pat. No. 3,520,925. This application June 8, 1972, Ser. No. 260,994

Int. Cl. A61l *15/00*; A61f *13/16*

U.S. Cl. 128—156 7 Claims

Articles having improved sorbency for aqueous body fluids are provided wherein novel classes of water-swellable, water-insoluble, lightly cross-linked polymers are employed as sorbents in conjunction with a body-conforming support.

3,810,469

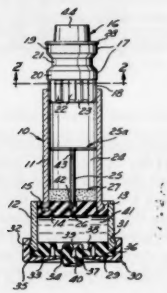
MULTIPLE COMPARTMENT HYPODERMIC DEVICES

Alfred A. Hurschman, Hudson, Ohio, assignor to Ampoules, Inc., Macedonia, Ohio

Filed May 24, 1972, Ser. No. 256,407The portion of the term of this patent subsequent to May 29, 1990, has been disclaimed.

Int. Cl. A61m *5/28*; A61j *5/00*

U.S. Cl. 128—218 M 6 Claims



A multichamber hypodermic ampoule of the contained needle type and a method of assembling and filling such an ampoule are disclosed. The ampoule includes multiple chambers for premixing a powdered medicament with a diluent and injecting the mixture. One end of one chamber is closed by a plunger and the other end of that chamber is closed by a first pierceable diaphragm. A hollow needle is operatively associated with the plunger and is initially contained within that chamber. The first pierceable diaphragm is slidably mounted in one end of a second chamber which contains the diluent, and the other end of that chamber is closed by a second pierceable diaphragm. The plunger is provided with a first cylindrical portion having a plurality of axially extending and radially projecting ribs, and is provided with a second cylindrical portion which is adapted to form a seal with the chamber. The ampoule is assembled and filled by affixing the first diaphragm to one end of the first chamber, slidably mounting the first diaphragm in one end of the second chamber, filling the second chamber with a diluent, affixing the second diaphragm to the other end of the second chamber, staking the pointed end of a needle in said first diaphragm, partially filling the first chamber with a medicament to be lyophilized, and partially inserting the plunger in the first chamber so that passageways defined by the ribs permit vapor to be sublimed from the chamber during a lyophilization process. When lyophilization is complete and the medicament in the first chamber is in a powdered or freeze-dried condition, the plunger is fully inserted to seal the ampoule and to contact the head of the needle.

3,810,470

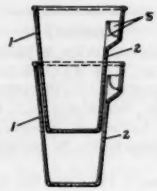
NESTABLE PILL-ADMINISTERING DRINKING VESSEL

Leo J. Von Gunten, 829 W. Nimisila Rd., Akron, Ohio

Filed June 15, 1971, Ser. No. 153,357

Int. Cl. A61j *7/00*

U.S. Cl. 128—222 9 Claims



Nestable pill-administering vessels and nests thereof. Each vessel has an interior pill support, and the vessel wall is dished in beneath the support to allow nesting.

3,810,471

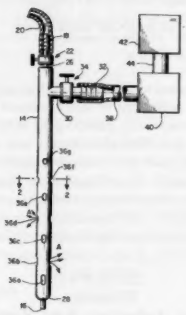
SURGICAL ASPIRATING CANNULA

Andrew Truhan, R.D. 3, Box 392T, Somerset, N.J.

Filed Mar. 22, 1972, Ser. No. 236,947

Int. Cl. A61m *1/00*

U.S. Cl. 128—276 3 Claims



A surgical aspirating or draining device having means maintaining a zone of contamination free gas about the surgical site to reduce a minimum introduction of contaminated particulate and gaseous matter into the surgical site, cavity or wound.

3,810,472

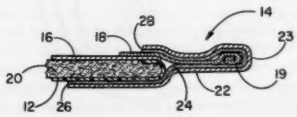
FASTENING TAB ARRANGEMENT FOR DISPOSABLE DIAPERS

Karl E. Aldinger; Karl L. Pennau, and Richard H. Frick, all of Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 10, 1972, Ser. No. 296,250

Int. Cl. A41b *13/02*

U.S. Cl. 128—287 5 Claims



Pressure-sensitive fastening tabs for disposable diapers in which the free end of each tab is folded back transversely on

itself with the pressure sensitive adhesive surface on the inside. Disposed between the thus juxtaposed adhesive surfaces is a release sheet having multiple folds at one end adjacent the transverse fold of the tab. The release sheet permits the tab to be unfolded for use when applying the diaper, and the folds in the release sheet provide a handle for removing the release sheet completely from the tab.

3,810,473

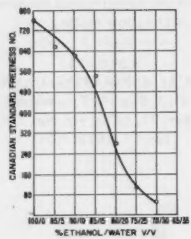
LIQUID-LAID, NON-WOVEN, FIBROUS COLLAGEN DERIVED SURGICAL WEB HAVING HEMOSTATIC AND WOUND SEALING PROPERTIES

Mamerto M. Cruz, Jr., Pennington, N.J.; Orlando A. Battista, Fort Worth, Tex.; LaVerne C. Tressler, Trenton, N.J., and Carmine Cirolla, Morrisville, Pa., assignors to Avicon, Inc., Ft. Worth, Tex.

Filed Dec. 4, 1972, Ser. No. 312,210

Int. Cl. A61b *17/04, 17/08*

U.S. Cl. 128—334 **13 Claims**



Liquid-laid, non-woven, fibrous web having hemostatic and adhesive properties sufficient to seal a wound formed of fibers of ionizable, water-insoluble, partial acid salts of collagen, the web having certain specified absorbency and porosity characteristics. In order to prevent excessive swelling of the fibers with resulting excessive hornification or densification upon drying, it is essential that mixtures of water-miscible organic liquids such as ethanol with specified minor porportions of water be utilized as the slurrying media.

3,810,474

TUBING

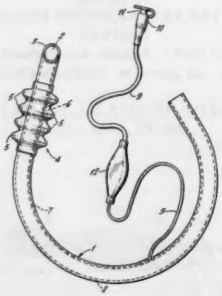
David Edward Cross, Folkestone, Kent, England, assignor to Smiths Industries Limited, London, England

Filed Sept. 21, 1972, Ser. No. 290,922

Claims priority, application Great Britain, Sept. 24, 1971, 44638/71

Int. Cl. A61m *25/00*

U.S. Cl. 128—351 **9 Claims**



An endotracheal tube has an inflatable cuff of undulatory bellows-like configuration to provide spaced circumferential convolutions, whereby cuff contact in establishing a labyrinth seal with the intubated patient's trachea is restricted to narrow bands so as to reduce the extent, and consequential healing-time, of any pressure-induced necrosis. A cuff convoluted over only part of its length is provided on a tracheostomy tube, and alternative configurations of cuff of partially-convoluted form and involving cylindrical shoulders of different lengths, are used for endotracheal and tracheostomy tubes. The cuff in each case is inflated from an air-line that includes a pilot balloon and is coupled into a passageway which is incorporated in the tube wall and which opens through the wall into the cuff.

3,810,475

CIGARETTE MAKING MACHINES

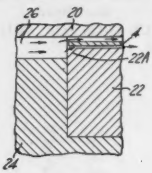
Francis Auguste Maurice Labbe, Neuilly-sur-Seine, France, assignor to Molins Limited, London, England

Filed Aug. 20, 1971, Ser. No. 173,384

Claims priority, application Great Britain, Aug. 21, 1970, 40390/70

Int. Cl. A24c *5/18*

U.S. Cl. 131—84 B **7 Claims**



A cigarette-making machine has an air-pervious band which is arranged to carry the cigarette filler stream by means of suction applied through the band from a suction chamber, and includes ports through which air from the atmosphere is drawn by the suction from the suction chamber so that air flows inwards from both edges of the band over both surfaces thereof to help in clearing particles out of the gap between the band and the surface of a fixed member supporting the band.

3,810,476

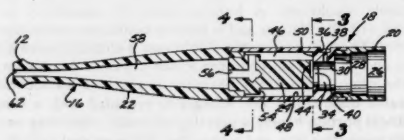
CIGARETTE HOLDER

Leonard L. Thomas, 375 N.W. Cypress St., Orange, Calif.

Filed June 16, 1972, Ser. No. 263,513

Int. Cl. A24f *5/04, 13/02*

U.S. Cl. 131—187 **3 Claims**



Apparatus to aid the tobacco smoker in overcoming the smoking habit in the form of a cigarette holder arranged to admit ambient air in parallel with the cigarette smoke in response to inhalation suction. The flowpath through the holder includes two smoke storage chambers and a flow restrictor between the two chambers. Air is admitted into the upstream chamber. The downstream chamber is larger than the upstream chamber. The flowpath is arranged so that smoking with the holder results in substantially the same "feel" in terms of temperature, flow rate and resistance to flow that he experiences when smoking without the filter. Moreover, the structure is arranged to accommodate a withdrawal method in which the size of the air inlet opening is increased from time to

time. The device employs a single shank with a series of bodies each with a different size air inlet hole. The holder is dismantled from time to time during the withdrawal course. It is arranged so that the tars are filtered out of the smoke and retained in the holder where they will be visible for psychological effect.

3,810,477

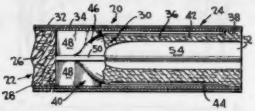
TOBACCO SMOKE FILTER

Richard M. Berger, Richmond, and Elwin W. Brooks, Mechanicsville, both of Va., assignors to American Filtrona Corporation, Richmond, Va.

Division of Ser. No. 261,835, June 12, 1972, which is a continuation-in-part of Ser. No. 155,705, June 23, 1971, which is a division of Ser. No. 45,109, June 10, 1970, Pat. No. 3,637,447, which is a continuation-in-part of Ser. No. 820,355, April 30, 1969, Pat. No. 3,599,646, which is a continuation-in-part of Ser. No. 727,477, May 8, 1969, Pat. No. 3,533,416. This application Apr. 5, 1973, Ser. No. 348,073. Notice: The portion of the term of this patent subsequent to Oct. 13, 1987 has been disclaimed.

Int. Cl. A24d *1/64*; **A24f** *7/64*

U.S. Cl. 131—261 R **4 Claims**



Tobacco smoke filter means, particularly for use with cigarettes and the like, having improved filtration efficiencies and/or reduced costs. One embodiment increases filtration efficiency by minimizing the crimped portion of the filtering material thereby maximizing the effective filtering area. Another embodiment reduces total weight of filtering material, and thereby costs of manufacture, while still producing high level filtration efficiency by utilizing a "double crimp" thereby forming an enclosed intermediate cavity means so that the smoke must pass through the filtering material twice.

3,810,478

SHAMPOO COMPOSITION POSSESSING SEPARATE LOTION PHASE

Frank Wesley Olson, Jr., Pompton Plains, and Karl Hutcheson Roberts, Flemington, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,973

Int. Cl. A45d *7/00*

U.S. Cl. 132—7 **13 Claims**

A two-phase shampoo composition is made by preparing substantially polar and lipophilic portions of a shampoo composition, and mixing them together. As the result of the mixing, the lipophilic portion becomes emulsified and creamy in appearance, forming a lotion which is stable and which is lighter than the polar phase. The lotion floats on top of the polar phase and a sharp line of demarcation is subsequently exhibited between the phases. Apparently, minor proportions of components of the polar phase are absorbed into the lipophilic phase, forming the stable lotion.

The polar phase comprises amphoteric and also, cationic surface active agents, including higher alkyl di-lower alkyl amine oxide, N-higher alkyl beta-alanine, higher fatty acid amido-lower alkyl di-lower alkyl hydroxy-lower alkyl ammonium halide, and higher fatty acid di-lower alkanolamide, with lower alcohol, water, and means to adjust the pH to within the range of about 5 to 9.5.

The lotion portion comprises a suitable oil, such as a light mineral oil, plus constituents absorbed from the polar phase to form the lotion. Although mineral oil is an important constituent of the lipophilic phase and increases the stability of the resulting product, as compared to vegetable or animal oils and fats which are sometimes employed in shampoos, small proportions of such oils may often be used, in addition to a major proportion of mineral oil in the lotion phase.

The shampoo made is used as a homogeneous temporary emulsion of the lotion and polar phase, created by shaking, and imparts a conditioning action to the hair washed with it, due to the actions of the oil, amphoteric and cationic surface active agents and the conditioners in the formula.

3,810,479

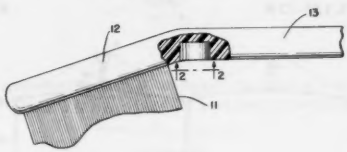
TOOTHBRUSH HAVING ANTIMICROBIAL MEANS

Gilbert Dwayne Miles, Ossining, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,292

Int. Cl. A45d *44/18*

U.S. Cl. 132—84 **5 Claims**



A toothbrush of normal configuration and structure has a relatively small well on the side of the brush having the bristles and in relative proximity thereto. The well contains an antimicrobial material which is sparingly soluble so that as the brush is wetted the moisture will dissolve a small portion of the antimicrobial agent which is then distributed over the bristles by capillary action thereby sterilizing them.

3,810,480

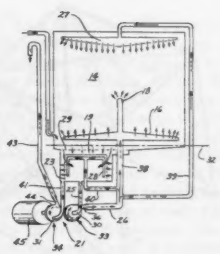
FLUID CONTROL SYSTEM

Thomas R. Smith, and Stewart W. Faust, both of Newton, Iowa, assignors to The Maytag Company, Newton, Iowa

Division of Ser. No. 27,883, April 13, 1970, abandoned, which is a division of Ser. No. 738,277, June 19, 1968, Pat. No. 3,542,594. This application June 5, 1972, Ser. No. 259,872

Int. Cl. B08b *3/02*

U.S. Cl. 134—104 **7 Claims**



A fluid control system for a dishwashing apparatus is disclosed that includes a reversible two-cavity pump assembly with each of the cavities having an inlet in open fluid communication with the washing chamber and with the first cavity having an outlet in open fluid communication with the fluid distribution system and the second cavity having an outlet in open fluid communication with an external drain conduit. An impeller is disposed within each of the cavities and a divider is positioned between the cavities for defining an annular orifice therebetween. Operation of the impellers in a first direction effects pumping of fluid from said chamber to the fluid recir-

culation system with the first pump while the second pump maintains a substantially static low pressure head at the outlet thereof to prevent drainage of fluid from said chamber while preventing suction of fluid from the drain. The pumps are operable in the opposite direction to intially continue recirculation of fluid with the first pump while the second is operable for draining fluid from the chamber and pumping it toward an external drain.

3,810,481

TENT

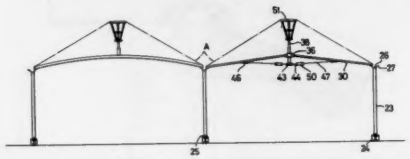
Ryotaro Nohmura, No. 19-19, 3-chome, Senriyama-nishi, Suita-shi, Osaka-fu, Japan

Filed Nov. 13, 1972, Ser. No. 305,825

Claims priority, application Japan, Jan. 13, 1972, 47-5967; Jan. 13, 1972, 47-5969; Jan. 17, 1972, 47-9428; Mar. 9, 1972, 47-29619

Int. Cl. A45f *1/16*

U.S. Cl. 135—3 R **8 Claims**



Apparatus for suspending a tent comprising support poles at each corner thereof, a top wall of the tent being supported by a center frame member supported by the support poles to thereby omitting a main center pole. The support poles are connected together by support beam which acts as rain gutters and the support poles serve as vertical rain conducts.

3,810,482

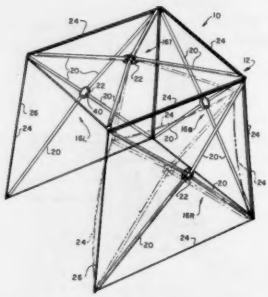
COLLAPSIBLE TENT AND FRAME THEREFOR

Allan E. Beavers, Denver, Colo., assignor to T. A. Pelsue Company, Englewood, Colo.

Filed Nov. 14, 1972, Ser. No. 306,403

Int. Cl. A45f *1/16*

U.S. Cl. 135—4 R **12 Claims**



This invention relates to a collapsible tent structure in which both sidewalls, the rear wall and top are supported by nearly identical subframe assemblies, each of which has a length of stretchable cord fastening the ends of its jointed diagonally extending struts together. The struts of each subframe assembly are pivotally attached at their adjacent ends to a stop-forming connector at the intersection of the diagonals for foldable movement in one direction into side-by-side relation with one another while such connector limits their unfolded position to one in which they bear an angular relation of over 180° and less than approximately 220° to one another which position is maintained by the tension in the stretchable cord interconnecting the remote ends thereof. The cord preferably is reeved through marginal hems bordering the frame-supported walls thus defining a unitary foldable tent assembly. The frame itself comprises the four more or less identically constructed subframe assemblies pivotally interconnected to one another at their common corners together with the connectors for accomplishing the latter.

3,810,483

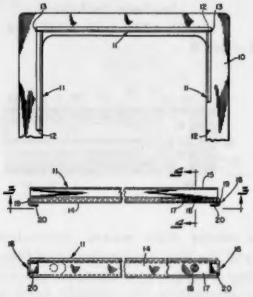
REMOVABLE OVEN DOOR SEAL

Arthur W. Vonderhaar, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio

Filed Nov. 14, 1972, Ser. No. 306,213

Int. Cl. F24c *15/02*

U.S. Cl. 126—190 **1 Claim**



The seal includes a sleeve of silicone rubber or the like and metal hook-like retainers at the sleeve ends which are cemented to the sleeve and engage in slots provided in the seal support surface. The sleeve length is normally about 20 percent shorter than the spacing of the slots, so that the sleeve is stretched in the mounting and held under tension as installed to conform closely to and bear firmly against the surface.

3,810,484

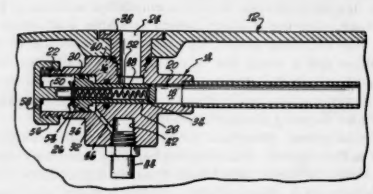
COOLING WATER VALVE

Leonard J. Martini, Monrovia, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 30, 1973, Ser. No. 327,883

Int. Cl. F16k *13/04, 17/14, 17/40*

U.S. Cl. 137—70 **3 Claims**



A water valve assembly which includes a valve body having a central passageway which has a water receiving portion and a counterbored portion, and a lateral water inlet port which opens into the water portion of the passageway. A piston and

rod are provided with the piston sealably disposed within the counterbore portion of the passageway and the rod sealably disposed within the water portion of the passageway so that longitudinal movement of the piston in the counterbore causes the rod to open and close the water portion of the passageway to the inlet port. Means are provided for biasing the piston and rod to close the water portion of the passageway, and means are provided for applying pressurized fluid to the backside of the piston for driving the piston and rod to open the water portion of the passageway. Once the passageway is opened it may be maintained in an opened condition by the force of the water pressure on the end of the piston rod against the biasing means.

3,810,485

EXPLOSIVE CHARGE ACTUATED VALVE

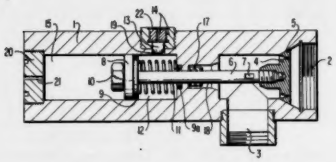
Heinz Gawlick, Furth; Hellmut Bendler, Erlangen-Spardorf; Gunther Gottwald, Nurnberg; Gunter Hubsch, Kalchreuth, and Karl Egon Flach, Cologne-Riehl, all of Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

Filed May 5, 1972, Ser. No. 250,768

Claims priority, application Germany, May 6, 1971, 2122423

Int. Cl. F16k *13/06*

U.S. Cl. 137—71 **9 Claims**



An explosive charge actuated pressure valve which combines the features of a self-sealing poppet valve with the advantages of a rupturing diaphragm by providing a sealing element connected to a piston and biased in the closed position against a valve seat disposed in the passage between an inlet opening and an outlet opening, the sealing element being connected to a piston in a chamber which is in communication with an explosive charge capable upon ignition of driving the sealing element against the valve seat with a force sufficient to rupture the sealing element to open the passage between the inlet and outlet openings.

3,810,486

VALVE FOR USE IN HYDRAULIC MACHINES

Werner Gutekunst, Partenstein, Germany, assignor to G. L. Rexroth GmbH, Lohr/Main, Germany

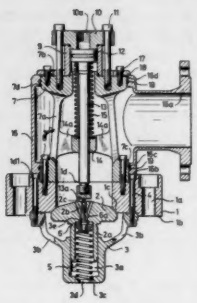
Filed Feb. 2, 1973, Ser. No. 329,190

Claims priority, application Germany, Feb. 10, 1972, 2206308

Int. Cl. E03b *9/02*; **F16k** *35/06*

U.S. Cl. 137—269 **5 Claims**

The novel valve can be used immersed in a liquid or it can be interposed in a conduit. It has a valve mechanism surrounded by a valve housing composed of an inner housing section and an outer housing section which surrounds the inner housing section. The inner housing section is used by itself in conjunction with the valve mechanism when the valve is installed immersed in a liquid, and when the valve is to be used interposed in a conduit both housing sections are employed.



3,810,487

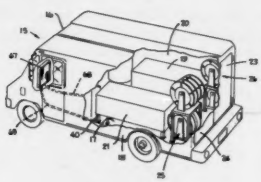
MOBILE LUBRICATION APPARATUS

Russell D. Cable, Flora, and Homer K. Brenneman, Delphi, both of Ind., assignors to Porta Service, Inc., Lafayette, Ind.

Filed Nov. 22, 1971, Ser. No. 200,973

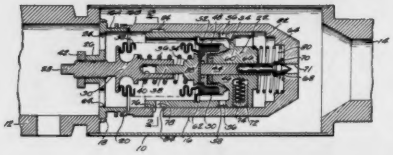
Int. Cl. B60p *3/24*

U.S. Cl. 137—351 **2 Claims**



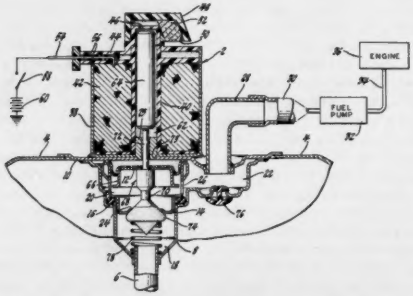
A mobile lubrication apparatus having a van truck with storage tanks mounted therein connected to pressure hoses. A pair of hose assemblies are mounted adjacent to the rear door of the truck with each assembly having four rotatably mounted reels with a hose wrapped around each reel. The hoses are extendable from the truck so as to allow lubrication of another vehicle. A row of tanks is mounted to the truck platform adjacent each one of the two side walls of the truck. The tanks adjacent one side wall are spaced from the tanks mounted adjacent the other side wall forming a walkway and a storage area therebetween. One row of tanks has a pair of engine oil tanks and a water/anti-freeze tank. The other row of tanks has a chassis lubrication tank, a transmission oil tank and a waste oil receiving tank. A generator is mounted within the truck being operably driven by the truck transmission and providing electrical energy to operate an air compressor mounted atop an air storage tank. Air pressure pumps are mounted atop the tanks being operable by the pressurized air provided by the air compressor to force the contents of the tanks out through the hoses of the hose assemblies. A waste oil receiver may be positioned under the vehicle being lubricated to receive waste oil and is connected to a suction hose which conveys the waste oil back to a storage tank within the truck. Another suction hose is provided so as to allow use of the customer's oil in lieu of the oil stored in the truck. Power outlets and a desk are mounted to the rear doors of the truck.

3,810,488
PRESSURE REGULATOR VALVE
Charles D. Orth, Cedarburg; Charles F. Treder, Brookfield, and Marcel P. Griffoul, West Allis, all of Wis., assignors to Controls Company of America, Schiller Park, Ill.
Filed Nov. 20, 1972, Ser. No. 308,029
Int. Cl. F16k 17/10
U.S. Cl. 137—489.3 **4 Claims**



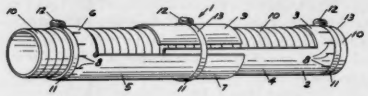
The interior of the bellows is sealed at atmospheric pressure so the pressure on the outside of the bellows is resisted by the atmospheric pressure within the bellows as well as by the spring. When the pressure on the outside of the bellows (which is evaporator pressure in a refrigeration system) exceeds a predetermined amount, the bellows tends to collapse and the head of the bellows pulls away from the actuating pin and allows the spring acting on the pilot valve to open the pilot valve whereupon the pressure to the right of the head of the piston is reduced, allowing the piston to move to the right against the return spring force and thus open the outlet by moving the end of the piston wall past the slot in the stationary sleeve. When the pressure falls below the desired amount, the bellows expands and moves the head of the bellows against the actuating pin to close the pilot valve. Flow through the bleed hole in the end of the piston to the pilot valve chamber rapidly raises the pressure therein so that the return spring can move the piston to close the outlet. Even with the outlet closed, the small port in the piston sleeve allows enough refrigerant flow to insure adequate flow to the compressor to keep the compressor lubricated. The bleed hole in the piston head is sized to require substantial opening of the pilot valve which, therefore, minimizes false opening of the main valve. Controlled leakage to the groove at the pilot end of the piston blocks flow from the pilot valve chamber to the main outlet and stabilizes valve operation.

3,810,489
SOLENOID LATCHED DIAPHRAGM FUEL SHUT-OFF VALVE ASSEMBLY
Daniel C. MacManus, Owosso; Carlen E. Larson, Davison, and Robert L. Lochmann, Grand Blanc, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Feb. 5, 1973, Ser. No. 329,905
Int. Cl. F16k 31/02
U.S. Cl. 137—495 **2 Claims**



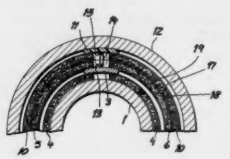
A fuel shut-off valve assembly for a vehicle fuel line comprises a chamber inserted in the fuel line with an inlet port having a spring biased check valve which opens toward the fuel tank and an outlet port open to the low pressure side of the fuel pump. The volume of the chamber is varied by a flexible diaphragm effective to open the check valve when the fuel pump tank operates. A solenoid energized through the engine ignition switch has an armature linked to the supporting brace and valve to help latch the valve open.

3,810,490
HOSE SUPPORT
Ralph Ludwick, 133 Gen. Lee Dr., Vivian, La.
Filed Oct. 30, 1972, Ser. No. 302,065
Int. Cl. F16l 3/02
U.S. Cl. 138—106 **10 Claims**



A hose support for maintaining drain hoses in the proper attitude and length to facilitate draining, which includes two L-shaped support collars and an upper support which are clamped to the hose in order to provide the necessary support.

3,810,491
METHOD OF INSULATING CONDUIT
Ullrich Hildebrandt, Munchen, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany
Filed Oct. 26, 1972, Ser. No. 300,884
Claims priority, application Germany, Oct. 27, 1971, 2153392
Int. Cl. F16l 9/14
U.S. Cl. 138—149 **10 Claims**

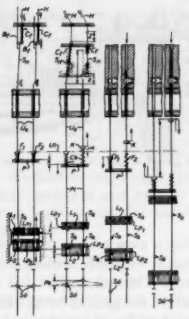


A method of insulating conduit of the double-wall type in which an inner pipe is coaxially surrounded by an outer pipe and the intervening space contains insulating materials as well as some means for positioning the two pipes coaxially. The inter-pipe space is evacuated and the inner tube may be employed for conducting low-temperature fluids and/or for receiving a low-temperature electrical cable, e.g., a superconductor. The insulating material is applied in generally helical bands while spacers are distributed in a helical pattern along the inner pipe and are subsequently removed to permit tension means to be provided between the inner and outer pipes so that the system for relatively positioning the two pipes is not under compression but exclusively under tension.

3,810,492
SHEDDING MOTION OF HEALDS FOR JACQUARD WEAVING MACHINES

William Eger Nyboe Lauritsen, Strandvagen 22, 443 00 Lerum, Sweden

Filed June 8, 1972, Ser. No. 260,926
Claims priority, application Sweden, June 9, 1971, 7444/71
Int. Cl. D03c 3/00
U.S. Cl. 139—59 3 Claims

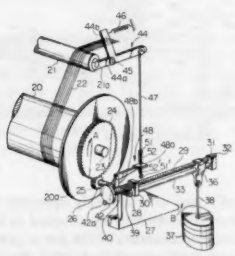


A shedding motion capable of individual operation of the healds in textile machines, particularly Jacquard weaving machines, involving high acceleration and deceleration of the healds. According to the invention, control of positive individual oscillatory and/or reciprocal movements of the yarn guiding means or the healds of the machine is realized by the intermediary of pulses from a selection device. The yarn guiding means are provided with catches and gripping or locking means are adapted, in their upper and lower positions, respectively, to engage the catches so that the yarn guiding means can be carried along by these catches.

3,810,493
TENSION REGULATING APPARATUS FOR LOOM

Yukio Mizuno, Tokyo, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Oct. 27, 1971, Ser. No. 192,973
Claims priority, application Japan, Oct. 30, 1970, 45-108588[U]; Nov. 4, 1970, 45-96577; Dec. 23, 1970, 45-116260; Dec. 23, 1970, 45-116261
Int. Cl. D03d 49/06
U.S. Cl. 139—110 24 Claims

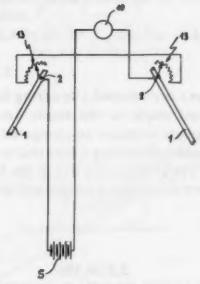


An improved apparatus for regulating a tension in warp yarns fed from a yarn beam of a loom is disclosed, which is adapted to regulate a torque on the yarn beam in accordance with the variation in the overall diameter of the roll of the yarns on the beam throughout the operation of the loom thereby to maintain the tension in the warps being unwound from the beam. The apparatus uses a weight which is in engagement with a threaded bar in a manner to vary the torque on the yarn beam. The threaded bar is mounted on a support structure which tends to turn relative to the yarn beam as the beam rotates. Such rotational deviation of the support beam is remedied by a position adjusting mechanism which is driven in synchronism with the loom so that the support means is returned to its initial position to transmit a proper torque to the rotating yarn beam.

3,810,494
DEVICE TO SUPPLY A THREAD

Jean Duplessy, "Le Sommet" 5 bis, rue J. B. Simon, Sainte Foy-Les-Lyon, France

Filed Dec. 1, 1972, Ser. No. 311,393
Claims priority, application France, Dec. 10, 1971, 71.45355
Int. Cl. D03d 47/34
U.S. Cl. 139—122 R 5 Claims



The invention relates to devices adapted to positively supply a thread or like elongated article under an approximately constant tension to a processing machine as it is pulled by the latter, of the kind comprising a thread advancing mechanism driven by a variable-speed electric motor, and two supports, such as pivoted levers, movable with respect to each other and urged apart by appropriate means such as springs, each carrying a number of guiding means between which the thread passes in zig-zag fashion, while means are provided to control the angular speed of the motor in such manner that it increases as the supports come nearer to each other and that it decreases when they move apart. In order to absorb the sudden variations of the linear speed at which the thread is pulled by the processing machine, as for instance a loom with stationary weft supply, in accordance with the invention the thread guiding means are carried by the movable supports through the medium of spring loaded pivoted arms of quite negligible inertia which follow closely the variations of the pulling speed of the thread without causing appreciable additional tensions. With such an arrangement the supports are practically only responsive to the variations in the average pulling speed of the thread.

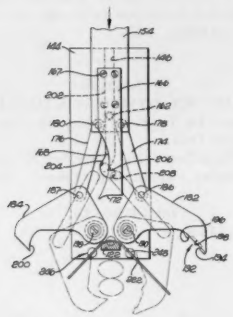
3,810,495
AUTOMATIC STAPLING SYSTEM

Kenneth E. Pack, Long Beach, Calif., assignor to Continental Drilling Co., Los Angeles, Calif.

Filed Feb. 12, 1973, Ser. No. 331,944
Int. Cl. B21f 15/06; B25b 25/00
U.S. Cl. 140—93 A 7 Claims

A stapling machine for automatically clamping a locking staple around a pair of rods. A pair of gripping jaws each have a first point pivotally fixed to the machine. A driver arm operates to close the jaws at different rates of speed, securing

the staple around the rods. A finger is connected to the driver arm for positioning the staple adjacent the rods upon closure of the jaws. A solenoid which actuates the driver arm also spring loads a mechanism. The spring loaded mechanism opens the jaws after the staple has been secured around the rods. A staple housing holds a plurality of staples therein.



Each time the jaws are opened, the spring loading mechanism positions the front staple in the staple housing for the next operation. The staple includes an elongated member having a curved portion interconnecting a first end and a head end. The head end has an eyelet area into which the first end is inserted and crimped when the staple is positioned around the rods.

3,810,496

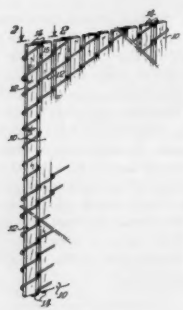
FABRICATION OF CHAIN WIRE FENCING INCORPORATING SLATS

Herbert E. Rohrbacher, Whittier, Calif., assignor to Bergandi Manufacturing Company, Inc., El Monte, Calif.

Filed Mar. 5, 1970, Ser. No. 16,810

Int. Cl. B21f *29/02, 27/14*

U.S. Cl. 140—25 **6 Claims**



As chain link fencing is fabricated in a step-by-step manner, wood slats are automatically inserted into the flattened wire coils that extend transversely of the fencing to result in a fence structure that is especially suitable for dividing highways. Instead of anchoring the slats in place by staples, the present invention teaches captivating the slats in the transverse coils by bending wire ends of the fencing across the opposite ends of the flattened coils to block the paths of escape of the slats.

3,810,497

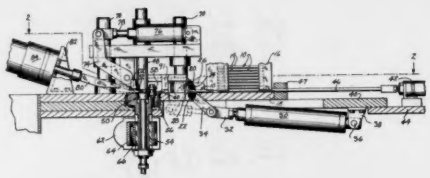
APPARATUS FOR BENDING RODS

James O. Werner, Greendale, Wis., assignor to Banner Welder, Inc., Milwaukee, Wis.

Filed Sept. 25, 1972, Ser. No. 290,939

Int. Cl. B21f *1/00*

U.S. Cl. 140—71 R **21 Claims**



A rod for forming a glow plug is fed between two grooved rollers one of which is rotatable around the other to make a 90° bend in the rod. The rod is then fed to an arcuate die groove of small radius, the groove being carried by a two part die. The bent portion of the rod is clamped in front of the arcuate die groove and a grooved roller is swung orbitally 270° around the arcuate die groove to force the unbent portions of the rod into and around the arcuate die groove, thereby forming a 270° arcuate bend of small radius. The two parts of the die are then separated and the bent rod is removed therefrom.

3,810,498

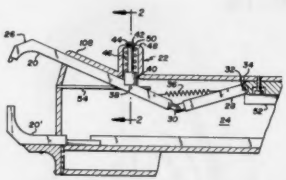
TOOL JAWS

Laszlo Hidassy, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Mar. 21, 1973, Ser. No. 343,415

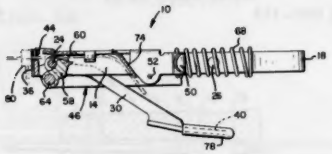
Int. Cl. B21f *9/02*

U.S. Cl. 140—93 A **13 Claims**



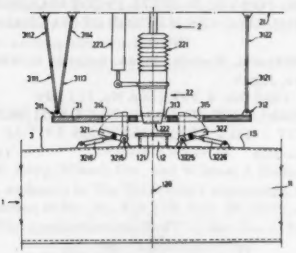
At least one of a pair of selectively operable tool jaws of a strap applying tool is cooperatively coupled to biasing means to permit selective displacement of the jaw or jaws in the event full closure of such jaws is restricted either by an obstruction or an oversized article situated between the jaws. In a preferred embodiment, the displaceable tool jaw is partially restrained by the bifurcated end of a plunger means having a shank portion engaged by a spring means resiliently coupling the plunger means to the tool housing. Adjusting means may be provided to selectively vary the pressure exerted by the biasing means.

3,810,499
BUNDLE TIE TOOL
David Van Dike Benfer, 131 Ridgeview Dr., Marysville, Pa.
Filed Feb. 21, 1973, Ser. No. 334,505
Int. Cl. B21f 9/02
U.S. Cl. 140—123.6 8 Claims



A tool is disclosed for tightening a strap around a bundle of wires or the like, the tool having finger grips for drawing the strap to a tightened position and further having means for severing the excess portion of the bundle strap after the tightening operation.

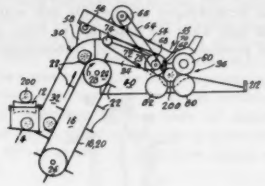
3,810,500
APPARATUS FOR CONNECTING A MOBILE TANK WITH LOADING PLATFORM
Marcel Brun, and Alfred Riegert, both of Aix en Provence, France, assignors to Pechiney Ugine Kuhlmann, Paris, France
Filed Oct. 18, 1971, Ser. No. 190,243
Claims priority, application France, Oct. 16, 1970, 70.37362
Int. Cl. B65b 3/06; B67c 5/06; B65g 69/22
U.S. Cl. 141—231 6 Claims



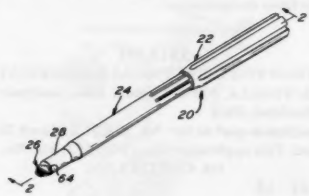
The invention relates to an apparatus for connecting a mobile tank to a loading and unloading station including a platform for the guidance of the pipes of the loading station for alignment with the pipes of the tank in which the platform which is suspended at the station has two transverse guide ramps and one longitudinal guide stop, while the other member has a pivotable finger which can act upon the ramps and the stops.

3,810,501
POST DOMER
Thomas B. Horel, Calgary, Alberta, Canada, assignor to Domtar Limited, Montreal, Canada
Filed Aug. 28, 1972, Ser. No. 284,034
Claims priority, application Canada, Mar. 20, 1972, 137,587
Int. Cl. B27m 3/00
U.S. Cl. 144—30 9 Claims

An apparatus for automatically forming a curved dome on a post by individually, automatically feeding logs into a doming station, rotating and axially advancing the logs in the doming station to a contoured cutting head and then ejecting the log from the doming station after the doming operation has been completed.



3,810,502
COMBINATION STRAIGHT SLOTTED AND CROSS SLOTTED SCREW STARTER
Smith Kyser, Lapeer, Mich., assignor to Aircraft Specialties, Inc., Lapeer, Mich.
Filed July 21, 1971, Ser. No. 164,650
Int. Cl. B25b 15/02
U.S. Cl. 145—50 E 6 Claims

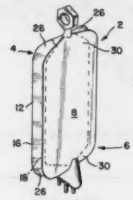


A screw starter is provided for use with either straight slotted or cross slotted screws. The starter includes a handle, a barrel and an actuating rod secured to the handle extending in one end of the barrel. The handle has a longitudinally extending opening for receiving the barrel. The handle is slidable longitudinally but fixed rotationally with respect to the barrel. Screw gripping means are provided which comprise a pair of blades which are connected together by an elongated spring bent back upon itself to form an elliptical portion and a straight portion. The actuating rod has a longitudinally extending portion which extends into the barrel for receiving the spring. The blades are spaced apart to grip the sidewalls of the screw slot when the elliptical portion of the spring is received in the opening of the actuating rod by movement of the handle towards the blades. The blades are tapered towards the end thereof for use on either straight slotted or cross slotted screws and have serrated outer surfaces to enable a more secure gripping action of the screw.

3,810,503
VARIABLE VOLUME CONTAINER FOR FLUIDS
Dan Lewis, Jr., Concord, and Raymond D. Von Alven, San Rafael, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.
Filed Aug. 22, 1972, Ser. No. 282,777
Int. Cl. B65d 33/02
U.S. Cl. 150—8 30 Claims

A unitary, integrally molded variable volume container is disclosed for fluids. The container includes a pair of opposed rigid side walls extending between top and bottom portions for maintaining the top and bottom portions in fixed vertically spaced relationship and for supporting a pair of opposed flexible side walls. To provide uniform and controlled collapse of

the flexible side walls, each rigid side wall includes a pair of planar walls integrally connected to form a V-shaped cross section adapted to provide a surface against which the flexible side walls come into contact when in a fully contracted condition. In one embodiment the flexible side walls and the V-shaped rigid side walls are extended to form collapsible top and bottom portions. In a second embodiment, the top and



bottom portions each include an end panel connected to the side walls by a plurality of planar panels adapted to permit the end panel to move between retracted and extended positions. In yet another embodiment, the top and bottom portions are each formed of an integrally connected end panel, flexible side wall extensions and V-shaped panels adapted to permit substantial collapse of the top and bottom portions as fluid is withdrawn from the container.

3,810,504

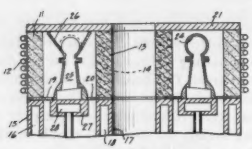
METHOD FOR DIRECTIONAL SOLIDIFICATION

Thomas S. Piwonka, North Canton, Ohio, assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 128,273, March 26, 1971, abandoned. This application Mar. 30, 1973, Ser. No. 346,691

Int. Cl. B22d *25/06*

U.S. Cl. 164—60 **4 Claims**



Method and apparatus for improving the prodution rate of directionally solidified castings employing an annular mold having one or more molding cavities therein and a pair of heat radiating elements disposed concentrically with the mold, one being located inside and the other being located outside the mold, the heat radiating elements being arranged so that no temperature gradient exists across the mold. A pair of heat sinks is provided, the heat sinks being coaxial with the two heat radiating elements. Means are provided for causing relative movement between the annular mold and the heat radiating elements and the coaxially aligned heat sinks. The annular mold is positioned on a highly heat conductive pedestal or chill. The mold is preheated by the heat radiating elements to a temperature above the solidification temperature of the metal to be cast. After casting, the solidification of the metal progresses upwardly from the chill and the relative movement between the annular mold and the heat radiator-heat sink combination causes the solidification innerface to occur at or near the boundary between the heat radiators and the heat sinks. A baffle is advantageously positioned at this boundary to prevent heat being radiated from the heat radiators to the heat sinks. The solidified metal in passing through the heat sinks radiates heat uniformly to the heat sinks so as to prevent a lateral or radial thermal gradient across the mold during solidification of the metal therein.

3,810,505

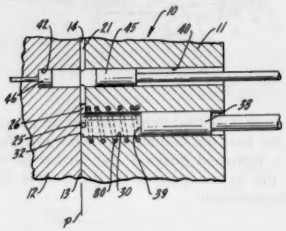
DIE CASTING METHOD

Raymond E. Cross, 910 Greenbay Rd., Lake Forest, Ill.

Continuation-in-part of Ser. No. 95,440, Dec. 7, 1970, which is a division of Ser. No. 865,397, Oct. 10, 1969, Pat. No. 3,646,990, which is a continuation-in-part of Ser. No. 769,598, Oct. 22, 1968, abandoned. This application Oct. 17, 1972, Ser. No. 298,409

Int. Cl. B22d *13/00, 27/10*

U.S. Cl. 164—113 **4 Claims**



A method of die casting parts with high temperature melting point metals and die casts parts in the form of turbine blades and ball valves. The die casting is done in a die element set having mold cavity and runner at parting surfaces and an injection cylinder opening its full bore diameter onto the parting surfaces. The mold cavity is preheated to a temperature of between 800°F. and 1,200°F., a casting temperature of about 3,000°F. is employed, and the injection plunger develops a casting pressure of between 8,000 psi and 12,000 psi.

3,810,506

MOLDING FOR USE IN STEEL INGOT MAKING BY BOTTOM POURING AND METHOD OF MAKING STEEL INGOT

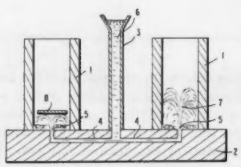
Hidetaka Kobayashi, Hasuda, Japan, assignor to Aikoh Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1972, Ser. No. 311,599

Claims priority, application Japan, Dec. 4, 1971, 46-97591

Int. Cl. B22d *1/00, 23/00*

U.S. Cl. 164—133 **15 Claims**



An erupting flow of molten steel in the early stage of the bottom pouring method to make a steel ingot is interrupted by disposing at the bottom of an ingot-making mold a molding which comprises about 40 to 96 percent by weight of a refractory material, 2 to about 50 percent by weight of a fibrous material and 2 to about 20 percent by weight of a binder. The molding has a size such that it is larger than the steel run-out hole in mold and can rise and float on the top surface of the molten steel within the mold. Thus, splashing can be prevented and a smooth casting surface can be obtained. The molding and the process are disclosed.

3,810,507

CONTINUOUS CASTING PLANT FOR SLABS

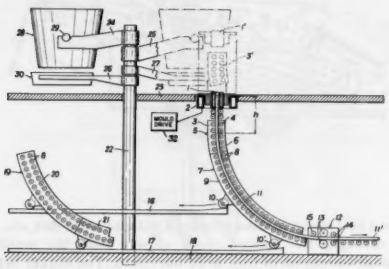
Rudolf Schoffmann, and Rudolf Rinesch, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Continuation of Ser. No. 39,479, May 21, 1970, abandoned. This application July 28, 1972, Ser. No. 276,099

Claims priority, application Australia, May 30, 1969, 5193

Int. Cl. B22d *11/12*

U.S. Cl. 164—260 **2 Claims**



A continuous casting plant for the production of slabs, comprising a straight, vertical mould which is water-cooled and releasably mounted in a frame, a secondary cooling or bar guiding means arranged below said mould and including a vertical part with a bending zone which is adapted to be lifted in and out in vertical direction through the frame after the mould has been lifted out of the frame, and a curved part which is adapted to be displaced in horizontal direction, and means for drawing and bending said bar, which are designed as a combined pulling, straightening and rolling stand adapted to be displaced in and out as an individual constructional unit. This plant affords the advantages of a low construction height, and of high operational safety. The quality of the products is improved because the occurrence of cracks is avoided and the bar may solidify symmetrically. Furthermore this plant may be built into existing steel works.

3,810,508

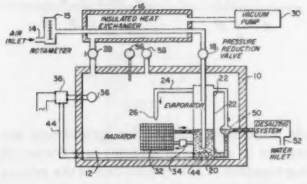
LOW PRESSURE STORAGE OF METABOLICALLY ACTIVE MATERIAL WITH OPEN CYCLE REFRIGERATION

Stanley P. Burg, Miami, Fla., and William J. Hentschel, Acton, Mass., assignors to The Dormavac Corporation, Miami, Fla.

Continuation of Ser. No. 879,178, Nov. 24, 1969, abandoned. This application Jan. 5, 1972, Ser. No. 215,688

Int. Cl. F24f *3/14*

U.S. Cl. 165—20 **12 Claims**



A controlled refrigerated storage environment conducive to preservation of stored respiring food tissue or other respiring matter is produced. Without the use of closed cycle refrigeration, by expanding atmospheric air and raising its relative humidity by passing it through a body of water while heating the body of water (except when the cooling demand exceeds the cooling capacity of the equipment) so that the air is cooled by its expansion and by evaporation of said water only to a preservation-conducive temperature (higher than the capacity of the equipment with that pressure drop at that rate of flow in the absence of such heating) and flowing the cooled expanded water-saturated air around the stored matter to sweep away gaseous products of metabolic reaction emitted from said matter. Heat input to the water is made responsive to cooling of the air in the vacuum chamber below a preservation-conducive temperature level and may be via an electric resistance element, e.g., immersed in the body of water, by heat exchange from an oil, water or air cooling system of a vacuum pump which serves as the air expansion means or from atmospheric air.

3,810,509

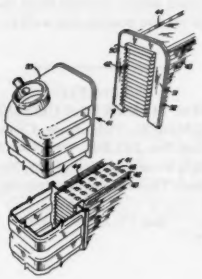
CROSS FLOW HEAT EXCHANGER

Leslie C. Kun, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 189,659, Oct. 15, 1971, Pat. No. 3,757,856, and a continuation-in-part of Ser. No. 270,259, July 10, 1972. This application Mar. 23, 1973, Ser. No. 344,429

Int. Cl. F28d *1/06*

U.S. Cl. 165—148 **23 Claims**



A cross flow heat exchanger comprising an outer structural frame, a multiplicity of channels longitudinally aligned in parallel spaced relation to form first fluid passageways within the channels, and a multiplicity of wall projection portions formed from the channel side walls and extending outwardly with load-bearing end segments of adjacent side walls abutting and transferring the channel load to the outer structural frame, the channels and wall projection portions arranged for flowing a second fluid normal to and in the space between adjacent channels, and fins extending from the channel edge walls having surface distortions.

3,810,510

METHOD OF VISCOUS OIL RECOVERY THROUGH HYDRAULICALLY FRACTURED WELLS

John L. Fitch, Dallas, and Malcolm K. Strubhar, Irving, both of Tex., assignors to Mobil Oil Corporation, New York City, N.Y.

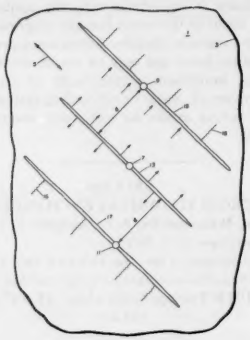
Filed Mar. 15, 1973, Ser. No. 341,431

Int. Cl. E21b *43/24, 43/26*

U.S. Cl. 166—271 **5 Claims**

This specification discloses a method of producing viscous hydrocarbons from a subsurface formation having a preferred vertical fracture orientation. An injection well and a production well are provided which extend from the surface of the earth and communicate with the subsurface formation. The injection and production wells are spaced laterally one from the other a predetermined distance measured in a direction about normal to the preferred vertical fracture orientation and are fractured by hydraulic fracturing techniques to create ver-

tical fractures within the formation which communicate with each well. The vertical fractures extend into the formation and follow essentially the preferred vertical fracture orientation of the formation. A thermal recovery technique is initiated and a



hot fluid is injected into the fracture which extends from the injection well and viscous hydrocarbons flow from the formation into the fracture which extends from the production well and are produced via the production well to the surface of the earth.

3,810,511

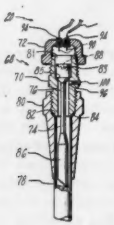
AUTOMATIC FIRE EXTINGUISHING SYSTEM

Russell H. James, Main St., Voluntown, Conn.

Division of Ser. No. 207,801, Dec. 14, 1971, Pat. No. 3,771,606, which is a continuation of Ser. No. 81,955, Oct. 19, 1970, abandoned. This application July 16, 1973, Ser. No. 379,766

Int. Cl. A62c *37/08*

U.S. Cl. 169—37 **8 Claims**



An automatic fire extinguishing system employing water as the firefighting medium and having sprinkler heads with nozzle apertures sealed with low melting point temperature responsive elements and charged with air under pressure to maintain the sprinkler heads dry while in a ready status.

3,810,512

HARVESTING APPARATUS FOR REMOVING CROPS FROM PLANTS OR VINES

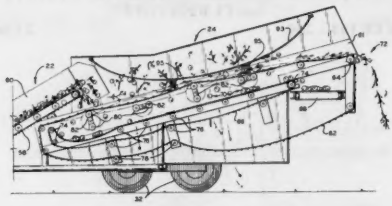
Wellington W. Porter, R.D. 2, Dublin Rd., Waterloo, N.Y.

Filed Dec. 1, 1972, Ser. No. 311,253

Int. Cl. A01d *17/04*

U.S. Cl. 171—14 **10 Claims**

Plants or vines having vegetables or fruit, e.g., tomatoes, attached thereto are picked up from ground level and deposited on a shaker belt formed of transverse links spaced more widely than the largest nominal dimension of the crops being harvested. As the plants are transported along the surface of the belt, the latter is oscillated to shake the fruit loose from the plants. Thus, the fruit may fall through the belt, between the links, while the plants remain thereon. A second belt is encircled by the first to catch the fruit falling therethrough. The



second belt is also formed of spaced links, to allow dirt, etc., to fall through, but spaced more closely than the smallest nominal dimension of fruit to be harvested. The shaker belt is oscillated by a plurality of rotating arms along each side, the arrangement and means of driving the arms being such that optimum shaking motion is achieved.

3,810,513

MOTOR VEHICLE WITH TWO DRIVING UNITS, ESPECIALLY FOR AGRICULTURAL PURPOSES

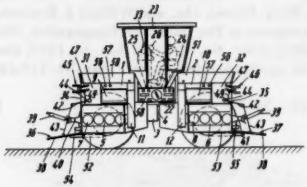
Richard Spiller, Bensberg; Gottfried Moser, Gergisch-Gladbach, and Walter Berthold, Schildgen, all of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

Division of Ser. No. 843,104, July 18, 1969, Pat. No. 3,690,395. This application Apr. 10, 1972, Ser. No. 242,696The portion of the term of this patent subsequent to Sept. 11, 1989, has been disclaimed.

Claims priority, application Germany, July 21, 1968, 1780052

Int. Cl. A01b *51/00*

U.S. Cl. 172—114 **7 Claims**



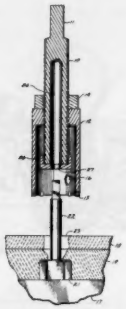
A vehicle, especially adapted for agricultural use, and having two engines in coaxial alignment in a frame and adapted for coupling together. Each engine drives the primary part of a torque transmitting arrangement, electrical or hydraulic, and secondary parts of the torque transmitting arrangement are connected to drive the vehicle wheels. Controls are provided to control the distribution of power from the primary parts to the secondary parts to determine the wheel, or wheels, to receive the power and the speed of rotation of the wheels. At both ends of the vehicle there are provided means for connection of implements to the vehicle and including lift type hitches and power take-off shafts.

3,810,514

CENTER GUIDED TILE DRILL

Steven J. Viscovich, Los Angeles, Calif., assignor to Relton Corporation, Arcadia, Calif.

Filed Dec. 8, 1972, Ser. No. 313,249
Int. Cl. E21b 9/16; E21c 13/02
U.S. Cl. 175—403 9 Claims



A self centering drill or hole saw particularly useful for drilling ceramic tile and removing grout from around a valve is described. The drill has an annular drilling face at one end of a hollow cylinder and is centered by a mandrel having a bore which fits over a valve stem. A cap on the mandrel provides adjustment for different size valve stems.

ERRATUM

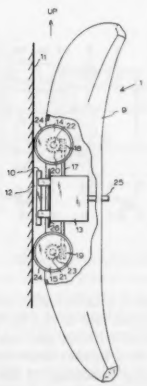
For Class 177—213 see:
Patent No. 3,810,638

3,810,515

WALL CLIMBING DEVICES

Ben Ingro, 2437 N. 73rd Ave., Elmwood Park, Ill.

Filed Oct. 10, 1972, Ser. No. 296,112
Int. Cl. B62d 63/02
U.S. Cl. 180—1 VS 7 Claims



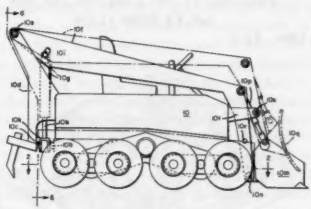
A device adapted to travel up, down or horizontally on the side of vertical walls, having means to adhere to said wall, power means and traction means. In one form of this invention a magnet is employed to cause the device to adhere to a ferrous wall, the magnet being spaced a slight distance from said wall. Rubber tires are provided on the wheels for traction. In another form of this invention rubber coated magnetic wheels are used. In another form rubber coated magnetic treads are used. In another form of the magnetic climbing devices the power means may be omitted and the devices are adapted merely for climbing down on ferrous walls, they being drawn downwardly through the force of gravity. In another form the climbing device uses suction means to enable it to cling to a wall. This device can be used in air or under-water. In this form a pump is used to create a low pressure area between said device and said wall.

3,810,516

VEHICLE WITH MULTIPLE ROCKING BEAM SUSPENSION SYSTEM AND STEERING MEANS

Walter E. Reimer, 16201 Ridgecrest, Monte Sereno, Calif.

Filed Feb. 22, 1972, Ser. No. 228,014
Int. Cl. B62d 61/00
U.S. Cl. 180—24 7 Claims



A tractor-type vehicle equipped with a suspension system of the type disclosed in my prior U.S. Pat. No. 3,313,555, equipped so that the vehicle may be used as a bulldozer, scarifier, plow and the like, all of these operations being under the control of the one hydraulic ram. The improved suspension system of this vehicle is provided with primary rocking beams, one on each side thereof and a pair of secondary rocking beams attached to each of the primary rocking beams, the wheels of the vehicle being mounted on the secondary rocking beams whereby the vehicle may be used over rough terrain and still operate with stability, smooth action and improved traction. The wheel mountings are constructed so as to provide ample clearance for the wheels during steering and turning of the vehicle. The steering mechanism is constructed so that the vehicle can be turned in a relatively small area without placing undue wear on the tires of the vehicle.

3,810,517

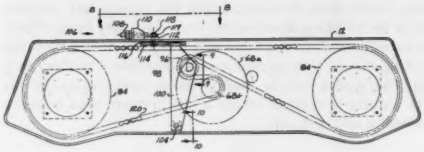
LOADER DRIVE

Joseph C. Hurlburt, Leola, and Lawrence M. Halls, New Holland, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Dec. 30, 1971, Ser. No. 214,038
Int. Cl. B66f 9/00
U.S. Cl. 180—49 7 Claims

A simplified final drive system for a four wheel drive skid steer tractor vehicle. Generally, the basic structure of the final

drive of the present invention comprises a single drive chain trained around a pair of spaced apart wheel sprockets, a drive sprocket and back wrapped around an idler sprocket, said sprockets and single chain being housed within a chain casing containing a lubricant solution. The idler sprocket is rotatively



mounted about an idler mount which itself is pivotally mounted within said chain casing and operatively connected to an adjusting mechanism disposed exteriorly of said chain casing, thereby enabling the tension of the chain to be adjusted without opening the chain case.

3,810,518

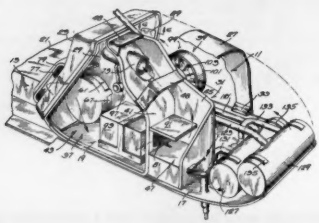
QUIET SNOWMOBILE

William B. Smale, Cedarburg, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed May 31, 1972, Ser. No. 258,260

Int. Cl. B60k *11/06*

U.S. Cl. 180—54 A **13 Claims**



Disclosed herein is a snowmobile including a hood extending from a frame portion to a transverse partition extending upwardly from the frame portion and defining, with the frame portion and with the transverse partition, a substantially closed compartment, together with first wall means extending in the compartment and dividing the compartment into an air supply chamber and an exiting air chamber, second wall means extending in the air supply chamber and dividing the air supply chamber into an entering air sub-chamber and a carburetor air supply sub-chamber communicating with the entering air sub-chamber, and an internal combustion engine mounted on the frame within the compartment and including a pair of cylinders, an engine cooling system including means defining an engine cooling air passage communicating between the entering air sub-chamber and the exiting air chamber, and a carburetor operably communicating with the cylinders and including an air inlet communicating with the carburetor air supply sub-chamber. The snowmobile disclosed herein also includes separate first and second mufflers mounted on the frame in the exiting air chamber and connected to the respective exhaust ports of the cylinder, together with baffled air inlet means communicating with the air supply chamber and baffled air outlet means communicating with the exiting air chamber.

The mufflers disclosed herein each include a series of barriers dividing the muffler into a series of chambers with one of the chambers including a single exhaust megaphone and with another of the chambers including a perforated barrier adjacent to one of the end walls of the muffler.

3,810,519

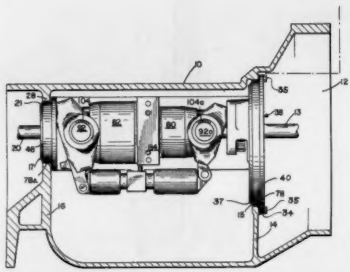
VEHICLE TRANSMISSION ASSEMBLY

Imre Galos, Downers Grove; William C. Swanson, Clarendon Hills, and Vaugh A. Nelson, Downers Grove, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Mar. 1, 1972, Ser. No. 230,700

Int. Cl. B60k *17/00*

U.S. Cl. 180—70 R **5 Claims**



A frame structure which includes spaced apart extending aligned walls, front and rear plate members, and a center section extending between the walls. Transmission components are built into the frame structure such that an inseperable modularized sound dampening unit is formed.

3,810,520

AUTOMATIC DAMPING DEVICE FOR BRAKING A VEHICLE

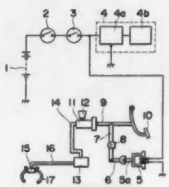
Masayoshi Iwata, Gifu, and Tsuneo Maeda, Aichi, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Dec. 28, 1971, Ser. No. 213,186

Claims priority, application Japan, Dec. 28, 1970, 45-132555; Dec. 28, 1970, 45-132556

Int. Cl. B60t *7/12*

U.S. Cl. 180—103 **11 Claims**



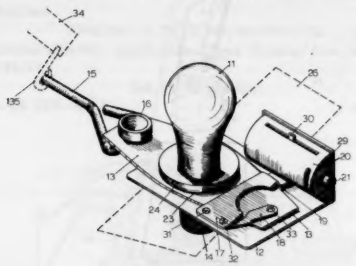
The present disclosure is directed to an automatic damping device for use in vehicles, said device being activated by collision of the vehicle and without the operation of the brake pedal by the driver. In a further embodiment of the present disclosure, the damping condition of the vehicle can be obtained and maintained in a collision situation as soon as the driver depresses the brake pedal. The function of the device does not interfere with the regular braking operation so as to insure the regular braking operation under normal operating conditions.

3,810,521

ANTI-FISHTAIL DEVICE FOR TRAILERS

Albert E. Sparr, Cutter Rd., Meadville, Pa.

Filed Aug. 18, 1970, Ser. No. 64,684
Int. Cl. B60t 7/20
U.S. Cl. 180—103 **7 Claims**



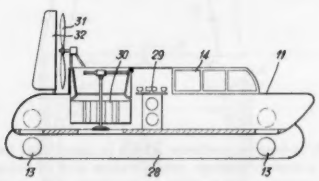
The specification discloses an anti-fishtail device for trailers. The device operates on the fact that application of the trailer brakes only will stop the fishtail of a trailer once it starts. An electric pickup is supported on the trailer coupler which is in turn secured to the frame of the automobile. It is actuated by the relative angular movement between the trailer and the towing vehicle. The apex of this angle is the center of the ball coupler on the hitch. This relative movement causes the pickup to send a signal through suitable circuitry to an amplifier which is connected to the electrical brakes of the trailer. The system, in effect, measures the rate of change of angle between the trailer and the vehicle and provides corrective action proportional to the disturbance.

3,810,522

AIR-CUSHION SUPPORTED VEHICLES

John Roderick Cromwell Morgan, 14 The Towers, Grand Ave., Worthing, Sussex, and Frederick William Albert Von Meijer, 82 Reigate Rd., Ewell, Surrey, both of England

Filed Sept. 24, 1971, Ser. No. 183,349
Claims priority, application Great Britain, May 13, 1971, 14804/71
Int. Cl. B60v 1/00
U.S. Cl. 180—116 **18 Claims**



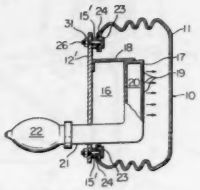
A ground effect vehicle or hovercraft has a main power plane or prime mover driving pumps from which hydrostatic circuits transmit power to individual hydraulic motors coupled, respectively, to the fan supplying air to the supporting ground cushion and to the drive propellers and other auxiliary facilities. The prime mover and principal mechanical components, as well as the control cabin of the vehicle, are built into a powered module that can be docked or mounted on any one of a number of platforms, which platforms are purpose-built for the functions the total vehicle is to perform and are provided with detachable skirts to retain the supporting air cushion.

3,810,523

SAFETY DEVICE FOR MOTOR VEHICLE

Michio Yamaguchi, Yokohama, and Yasumasa Kohno, Yokosuka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 20, 1972, Ser. No. 219,265
Claims priority, application Japan, July 23, 1971, 46-65447
Int. Cl. B60r 21/02
U.S. Cl. 280—150 AB **3 Claims**



A safety device for protecting a vehicle occupant from injury during a collision of a motor vehicle which safety device comprises, an inflatable confinement which is normally held in a contracted position, a source of a pressurized fluid capable of communicating with the inflatable confinement to supply the pressurized fluid to the inflatable confinement for thereby inflating the same when the motor vehicle is encountered the collision, a diffusing member operatively disposed in the inflatable confinement and having a plurality of apertures opening in a direction to inflate the inflatable confinement for directing the flow of the pressurized fluid to the inflatable confinement, the diffusing member communicating with the source of pressurized fluid, a mounting base member for supporting the inflatable confinement, and means for defining an exhaust passage opening to the atmosphere. The exhaust passage communicates with the inflatable confinement, whereby when the pressurized fluid is admitted to the inflatable confinement through the plurality of apertures of the diffusing member, the pressurized fluid initially inflates the inflatable confinement and subsequently discharges from the exhaust passage to absorb the impacting force of the vehicle occupant against the confinement.

3,810,524

APPARATUS FOR CARRYING A SEISMIC ENERGY GENERATOR

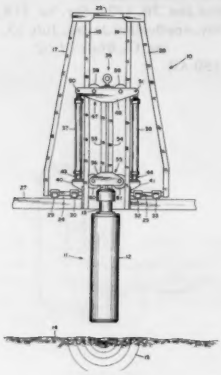
Clifford D. Dransfield, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Nov. 15, 1972, Ser. No. 306,895
Int. Cl. G01v 1/14
U.S. Cl. 181—.5 H **13 Claims**

Apparatus for carrying a seismic energy generator includes a frame and a carriage movable with respect to each other interconnected by a unidirectional dashpot which allows the carriage upon which the generator is mounted to move freely upwardly and constrains it from moving rapidly downwardly. The dashpot, in one embodiment, includes a piston, with holes therethrough contained within a hydraulic cylinder and a plate mounted adjacent and spring biased away from the piston to cover the holes when the bias is overcome by hydraulic fluid pressure to restrict the fluid flow and movement of the carriage in one direction.

The dashpot, in an alternative form, includes a plurality of mechanical engaging assemblies for connecting in a selected

rotational direction disc brakes to respective sprocket gears, which, in turn, engage chains to thereby interconnect the carriage and frame. The brakes are thus operative to allow the generator to move freely upwardly and to constrain it from moving rapidly downwardly, or vice versa.



3,810,525
ACOUSTICAL EARPIECE FOR AIR-PUSH SOUND SYSTEMS

Richard D. Crenna, 3951 Valley Meadow Rd., Encino, Calif.

Filed July 26, 1972, Ser. No. 275,285
Int. Cl. G02k *13/00*; **H04r** *25/00*
U.S. Cl. 181—23 **6 Claims**

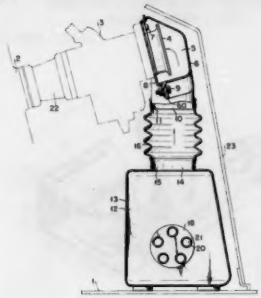
An acoustical earpiece having two cups connected by a headstrap and lined with acoustically transparent foam, the cups having plug-in sockets in their sides tightly receiving the ends of the two tubes of an earphone of an air-push sound system after removal of the standard ear cushions thereof.

3,810,526
INTAKE SILENCER FOR AN INTERNAL COMBUSTION ENGINE

Masaru Kawasaki, Hamakita, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata-shi, Japan

Filed Apr. 26, 1973, Ser. No. 354,763
Int. Cl. F01n *1/02, 1/06*
U.S. Cl. 181—35 A **10 Claims**

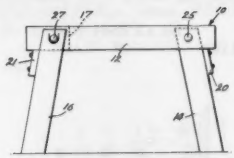
An intake silencer for an internal combustion engine includes two casings mounted one on a carburetor and the other on the chassis of a vehicle, each acting as an expansion chamber, one or more connecting means for connecting both the casings, and pipe assemblies mounted on the casing which is mounted on the chassis for sucking air therethrough whereby a suction noise produced by the carburetor and the engine is markedly muffled.



3,810,527
FOLDABLE SAWHORSE

John J. Kramer, 315 Hartel, Fox Chase, Pa.

Filed Aug. 2, 1973, Ser. No. 385,049
Int. Cl. F16m *11/00*
U.S. Cl. 182—155 **7 Claims**



A three-legged sawhorse which is capable of being folded into a compact storage configuration and of being unfolded into an erect usage position is disclosed. The sawhorse comprises a pair of horizontally-disposed beams extending in spaced parallel relation and a double-leg assembly pivotally mounted thereto at one end and a single leg pivotally mounted between the beams at the other end. The leg carries a transverse abutment member which engages the undersides of the beams when the sawhorse is in its erect position to limit outward pivotal movement of the leg. The double-leg assembly has a pair of divergent legs which are interconnected by a brace which engages the undersides of the beams when the sawhorse is in its erect usage position to limit outward pivotal movement of the leg assembly. The leg-beam pivot connections are provided by threaded fasteners having wing nuts which permit the legs to be clamped in either their folded or usage positions.

3,810,528
TURBINE WITH LUBRICANT TANKS IN CENTRE BODY AND HOUSING

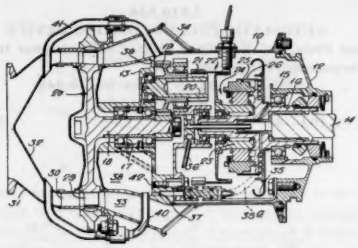
Charles Gordon Morley, Hemel Hempstead; Basil Charles James Stevenson, Warwicks; Llewellyn James Bedder, Coventry, and Arthur Henry Wells, Warwicks, all of England, assignors to Lucas Aerospace Limited, Birmingham, England

Filed Nov. 2, 1972, Ser. No. 303,276

Claims priority, application Great Britain, Nov. 4, 1971, 51316/71

Int. Cl. F16n 7/02

U.S. Cl. 184—6.11 **4 Claims**



A turbine power unit includes a peripherally bladed turbine wheel coupled to the input member of a gear box which is accommodated within a casing. The casing in use contains oil which is supplied to the bearings of the gear box by a pump. The device also includes a centre body which forms the motive fluid stream into annular form, the centre body also being hollow and constituting an oil reservoir. An additional reservoir is provided intermediate the turbine wheel and the gearbox, the two reservoirs serving to receive a substantial portion of the oil contained within the casing when the device is in use.

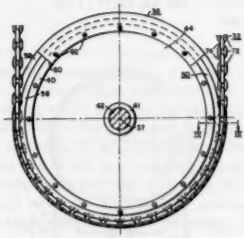
3,810,529
ELEVATOR SYSTEM

Lawrence Tosato, Millburn, and Frederick Solymos, Glen Ridge, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 25, 1973, Ser. No. 364,162

Int. Cl. B66b 17/12; B66d 1/36

U.S. Cl. 187—94 **9 Claims**



An elevator system including an elevator car and counterweight interconnected via hoisting roping for movement in the hoistway of a building having a plurality of landings to be served by the elevator car. Compensation for the hoisting roping includes a chain which interconnects the car and counterweight, and a compensator sheave which guides and tensions the chain. The sheave includes a circumferential groove formed by first and second axially spaced elastomeric members, with the grooves being sized such that alternate links of the chain extend edgewise into the groove, while the intervening links rest against the outer peripheries of the first and second members.

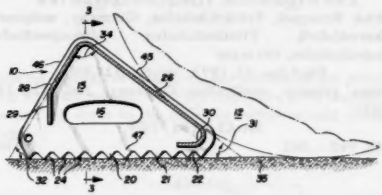
3,810,530
WHEEL CHOCK

Richard S. Jay, Evanston, Ill., assignor to Jarke Corporation, Chicago, Ill.

Filed Jan. 8, 1973, Ser. No. 321,832

Int. Cl. B60t 3/00

U.S. Cl. 188—32 **6 Claims**



A wheel chock for use primarily with trucks is shown and described being of unitary construction and having parallel opposed complimentary side plates and an L-shaped member serving as a ramp plate and support plate portion. The unit is characterized by a plurality of uniformly spaced teeth at the bottom edge of the side plates for ground engaging contact, and hand hold portions including cutout ports in the opposed side plates as well as a reversely bent portion at the lower edge of the ramp plate. Optionally provided is a float plate at the underneath portion of the L-shaped support defining a substantially closed triangular member interior of the opposed side plates, with the float plate spaced closely above the ground engaging teeth to engage softer support materials when the teeth penetrate the same.

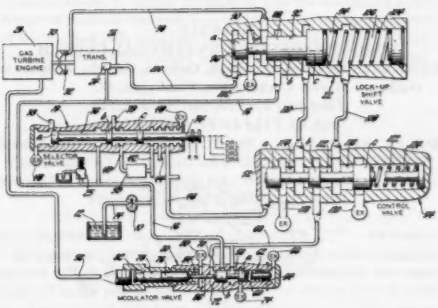
3,810,531
LOCK UP CLUTCH CONTROL

John O. Edmunds, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 169,377, Aug. 5, 1971, Pat. No. 3,719,093. This application Sept. 5, 1972, Ser. No. 286,161

Int. Cl. F16d 33/12

U.S. Cl. 192—3.3 **2 Claims**



A control for a transmission having a fluid coupling and a lock up clutch for selectively providing a fluid or mechanical input from a gas turbine engine. A shift valve controls the engagement and disengagement of the lock up clutch in response

to a transmission output governor signal or a manual signal in cooperation with the governor signal. The manual signal is controlled by a control valve which also supplies a disengagement bias pressure to the shift valve when the manual signal is not directed to the shift valve. The manual signal is generated in response to an engine operating parameter, such as torque demand, and acts on the shift valve in such a manner as to prevent engagement of the lock up clutch at zero vehicle speed above a predetermined value of the operating parameter.

3,810,532

AUTOMOTIVE TRANSMISSION WITH CLUTCH PEDAL AND HYDRAULIC TORQUE CONVERTER

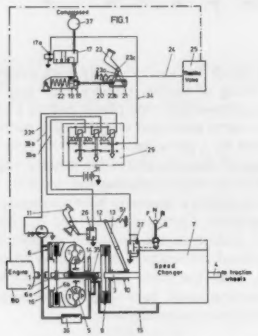
Friedrich Schuppel, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrickshafen Aktiengesellschaft, Friedrickshafen, Germany

Filed Jan. 22, 1973, Ser. No. 325,890

Claims priority, application Germany, Jan. 22, 1972, 2203057

Int. Cl. F16d *21/04*

U.S. Cl. 192—.062 **6 Claims**



An automotive transmission with a hydraulic torque converter and a pedal-operated master clutch between that converter and a gear shifter includes an acceleration inhibitor which is activated in the disengaged position of the clutch and in a drive position of a selector lever controlling the gear shifter to prevent the driver from speeding up the engine by stepping on the gas pedal preparatorily to starting the vehicle by letting in the master clutch. The torque converter is provided with a bypass clutch which, when operated, disables the acceleration inhibitor.

3,810,533

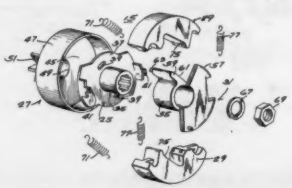
TORQUE REDUCING CENTRIFUGAL CLUTCH

Ulrich O. Densow, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed July 2, 1973, Ser. No. 375,713

Int. Cl. F16d *43/14, 43/06, 43/24*

U.S. Cl. 192—105 BA **7 Claims**



Disclosed herein is a centrifugal clutch including yieldable means connecting a drive element and a clutch shoe driver for rotating the clutch shoe driver in response to rotation of the drive element, together with means on a plurality of clutch shoes and on the clutch shoe driver for rotatably driving the clutch shoes and for guiding the clutch shoes for outward movement radially and angularly relative to the clutch shoe driver in response to clutch shoe rotation from a retracted position spaced from a clutch drum to an extended position in wedged driving engagement with the clutch drum, and means on the drive element limiting angular movement of the clutch shoes relative to the drive element, whereby thereafter to effect driving engagement by reason of centrifugal action as compared to wedging action and to thereby reduce torque transmission.

3,810,534

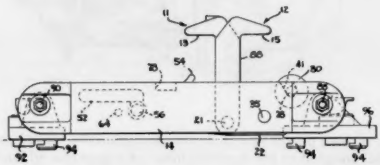
AUTOMATIC PALLET LOCKING DEVICE

Ernest Prete, Jr., Woodland Hills, Calif., assignor to Ancra Corporation, El Segundo, Calif.

Filed Apr. 22, 1970, Ser. No. 30,848

Int. Cl. B65g *11/00*

U.S. Cl. 193—40 **5 Claims**



A cargo pallet locking device utilizing fully retractable locking arms which are automatically actuated by the passage of the cargo pallets over the device. Pallet position is sensed by means of a pallet pickup actuator lever, in such manner that cargo pallets may be passed over the device during the cargo loading operation without actuating the locking mechanism. As each pallet reaches its final position, it is automatically locked in place. When the final pallet is loaded, or if a pallet position is not occupied, the lock assembly is capable of manual erection with a pallet either aft or forward of the lock assembly.

3,810,535

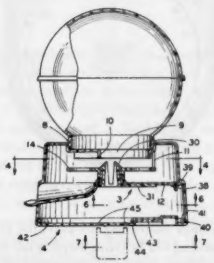
GUMBALL MACHINE COIN BANK

Cornelius M. Phipps, Glen Ellyn, Ill., assignor to Superior Toy Manufacturing Co., Inc., Chicago, Ill.

Filed Mar. 5, 1973, Ser. No. 337,850

Int. Cl. G07f *11/50*

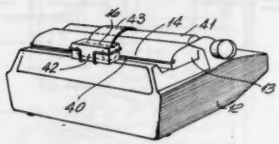
U.S. Cl. 194—85 **9 Claims**



The entire gumball dispensing operating mechanism comprises a subassembly of plastic parts stacked upon a single post which is bifurcated to provide a spring catch to hold all of the

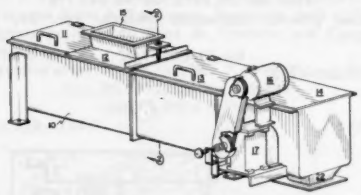
parts together. This mechanism, fully assembled as a complete subassembly, is snapped into a housing with which it cooperates in the proper feeding and dispensing of the gumballs.

3,810,536
TYPEWRITER ROLL LABEL HOLDER
Roger J. Madore, Sudbury, Mass., assignor to The Raymond Lee Organization Inc., New York, N.Y., a part interest
Filed June 13, 1972, Ser. No. 262,273
Int. Cl. B41j *15/00*
U.S. Cl. 197—133 R **1 Claim**



A device for fastening a container of roll lables to the carriage frame of a typewriter to permit convenient typewriting on the labels. The device is formed of wire which is bent so as to fasten onto a stabilizing bar mounted on the rear of the typewriter carriage, with the wire shaped to firmly hold the container of labels, while permitting the labels to unroll into the typewriter carriage as required.

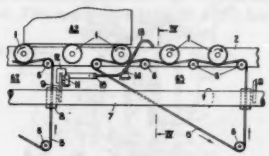
3,810,537
NOVEL BELT FEEDER
Fred R. Hungtington, Salt Lake City, Utah, assignor to The Galigher Company, Salt Lake City, Utah
Filed Apr. 13, 1972, Ser. No. 243,764
Int. Cl. B65g *47/18*
U.S. Cl. 198—57 **2 Claims**



A novel belt feeder for metering particulate materials is disclosed. The feed belt, enclosed in a dust-free enclosure, has flanged edges. The particulate material flows onto the belt through an opening which is elongated and has an increasing width in the direction of the belt travel to prevent bridging of the particulate material. An adjustable gate is disposed next to the downstream end of the feed opening to regulate the burden depth of material on the belt. A flexible skirt partially encircling the feed opening, substantially sealing the vertical space between the feed opening and the belt.

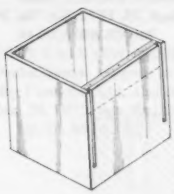
3,810,538
CONVEYORS
Martin Gerald Moyes, Melksham, England, assignor to Gec-Elliott Mechanical Handling Limited, Melksham, England
Filed Sept. 25, 1972, Ser. No. 291,769
Int. Cl. B65g *13/02*
U.S. Cl. 198—127 R **5 Claims**

A roller conveyor in which successive groups of one or more rollers are each associated with individual endless belts, each belt being associated with means for pressing it into contact with an associated drive means so as to cause it to drive the respective roller or rollers, and the conveyor including sensing means which, on the detection of the presence of an



article on a group of rollers, causes the belt of the preceding group to be disengaged from the respective drive means, so as to arrest the drive to the roller or rollers of said preceding group.

3,810,539
PHOTOGRAPHIC SLIDE CONTAINER AND TRANSFER DEVICE
P. Russell Hiller, 1028 508th St., Allentown, Pa.
Filed Apr. 26, 1972, Ser. No. 247,601
Int. Cl. B65d *1/22*; **B66f** *19/00*; **G03b** *23/00*
U.S. Cl. 206—73 **2 Claims**

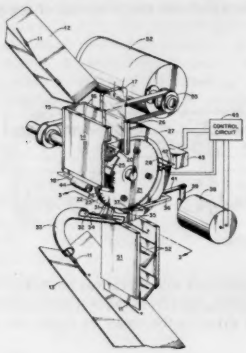


A rectangular box-like container, for storing and transferring photographic slides to a stack loader for a slide projector, has a bottom, four sides and an open end for receiving the slides. One of the sides is slotted inwardly from the open end and immediately adjacent its adjacent sides so that it may be flexed inwardly by finger pressure to grip the contained slides. A pad of resilient material may be affixed to the inner surface of the slotted side adjacent the open end to provide accommodation for possible slight variations in the size of the slides.

3,810,540
COMPONENT SORTING AND SEGREGATING SYSTEM
Michael P. Georges, Glendale Rd., Walpole, Mass.
Filed Oct. 10, 1972, Ser. No. 295,904
Int. Cl. B07c
U.S. Cl. 209—73 **14 Claims**

A transport mechanism having a wheel with uniformly spaced radial peripheral slots adapted to engage the axial leads of diode components transports the diodes, one in each set of peripheral slots from a supply bin past a polarity sensing station which registers the polarity of the diode in the slot and controls a drop gravity gate mechanism subsequent to the polarity sensing station to drop diodes of a given polarity and retain in the slots those diodes of the opposite polarity until the retained diode reaches a subsequent discharge station

which includes a physical reversing path between the discharge station and the ultimate delivery point for all diodes



whereby diodes delivered from both the drop station and the discharge station are delivered to a common delivery point with uniform polarity orientation.

3,810,541

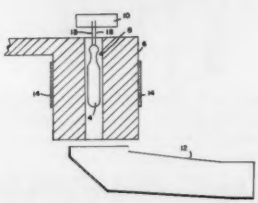
METHOD OF SEGREGATING TEMPERATURE RESPONSIVE CIRCUIT BREAKERS ACCORDING TO THEIR OPENING TEMPERATURE

Richard E. Perkins, South Windham, Maine, assignor to GTE Sylvania Incorporated, Danvers, Mass.

Filed Sept. 25, 1972, Ser. No. 291,785

Int. Cl. B07c *5/344*

U.S. Cl. 209—81 R **1 Claim**



Circuit breakers are inserted into close fitting holes in a rotatable ring shaped metal block. The block is heated and maintained at a predetermined temperature that exceeds the normal opening temperature of the circuit breakers. At the time of insertion, the lead-in wires of each circuit breaker are clamped by a suitable device. When the circuit breaker thermostatically opens, the clamp releases and the circuit breaker falls from the block. The time interval between insertion and release permits segregation of the circuit breakers according to their opening temperature.

3,810,542

PROCESS FOR REMOVING CHROMIUM FROM COOLING TOWER BLOWDOWN STREAMS

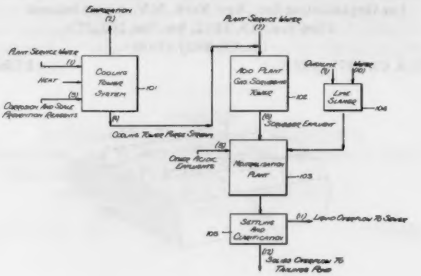
Arthur Gloster, Highland Lakes, and Harry G. Bocckino, Somerville, both of N.J., assignors to Texas Gulf, Inc., New York, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,379

Int. Cl. C02c *5/04*

U.S. Cl. 210—50 **4 Claims**

This disclosure is directed to a procedure for combining the streams from a cooling tower and an acid plant scrubbing tower to reduce the pollution problems of these industrial waste waters. The cooling tower stream is characterized by the presence of chromium products in which the chromium is in the hexavalent state, such as chromic acid or a chromate salt which are common corrosion inhibitors in cooling waters. The acid plant scrubbing tower is characterized by an acidic component such as sulphur dioxide dissolved in water. By combining these two streams the hexavalent chromium under acidic conditions is converted to trivalent chromium. The combined streams are then neutralized to precipitate chromium hydroxide and other compounds which are undesirable in the effluent. After settling out the chromium hydroxide and other compounds the waste stream may be discharged without presenting a pollution problem.



3,810,543

MOBILE PURIFYING PLANT FOR WASTE WATER

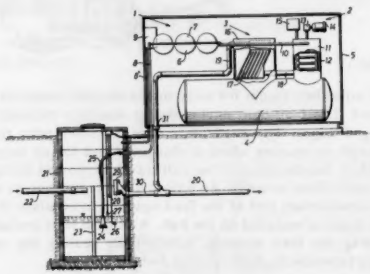
Bengt Olof Lundqvist, Gustavsberg, Sweden, assignor to AB Gustavsbergs Fabriker, Gustavsberg, Sweden

Filed Apr. 20, 1972, Ser. No. 245,778

Claims priority, application Sweden, Apr. 29, 1971, 5616/71

Int. Cl. C02c *1/02*

U.S. Cl. 210—152 **1 Claim**



A purifying plant for waste water consists of a mobile housing of a size to be transported on public highways. The housing contains means for the biological purification of the waste water, means for mixing alumium suphate into the biologically purified water, a separator to separate the deposited particles from the water, and a tank to collect the particles separated in the separator. The various apparatuses are situated at one wall of the housing, so as to create a compact plant.

3,810,544

FILTER SYSTEMS

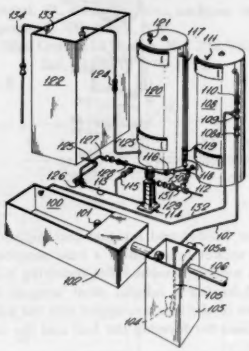
Allan Armstrong, Manchester, and Geoffrey Charles Fletcher, Cuffley, both of England, assignors to Sutcliffe, Speakman & Co., Ltd., Leigh, Lancashire and Alan Pond Equipment Limited, Harlow, Essex, both of, England

Filed June 21, 1972, Ser. No. 264,851

Claims priority, application Great Britain, June 16, 1972, 29435/72

Int. Cl. B01d *23/24*

U.S. Cl. 210—167 4 Claims



The invention relates to a filter and water reclamation system comprising two filter beds in series, one containing sand and one containing activated carbon granules, half a charge of water in a cycle passing only through the sand filter, the other half passing through the sand filter and the activated carbon, the water in the system remaining at a substantially constant volume.

3,810,545

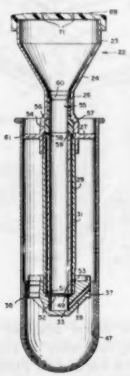
CENTRIFUGE CHROMATOGRAPHY APPARATUS AND SYSTEM

Charles J. Filz, Hamilton, Mont.; George T. Maurice, New Haven, and Svein B. Rasmussen, Rowayton, both of Conn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 95,546, Dec. 7, 1970. This application Dec. 29, 1972, Ser. No. 319,494

Int. Cl. B01d *15/08*

U.S. Cl. 210—198 C 5 Claims



Centrifugal chromatography apparatus and system wherein means are provided for initially preparing a chromatography column and subsequently transmitting a chromatography sample through said column.

3,810,546

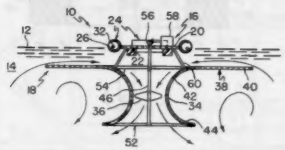
APPARATUS FOR CONTROLLING A POLLUTING LIQUID

James Preston Oxenham, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Continuation of Ser. No. 206,544, Dec. 9, 1971, abandoned, which is a continuation of Ser. No. 70,745, Sept. 9, 1970, abandoned. This application Mar. 28, 1973, Ser. No. 345,801

Int. Cl. E02b *15/04*

U.S. Cl. 210—242 1 Claim



There is disclosed apparatus for removing a pollutant, e.g., polluting liquid, floating on the surface of a body of water. The invention uses a skimmer utilizing liquid movement theretoward to facilitate separation of the polluting liquid from the water. The skimmer is arranged to remove the polluting liquid from all directions. The invention further uses means for circulating water adjacent the polluting liquid/water interface to present moving liquid to the skimmer approaching from all directions.

3,810,547

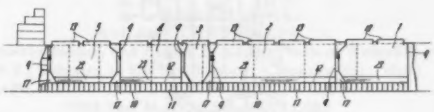
SLURRY CARRYING VESSEL

Yasunobu Shudo, Osaka, Japan, assignor to Hitachi Shipbuilding and Engineering Company Ltd., Osaka, Japan

Filed Jan. 30, 1973, Ser. No. 328,013

Int. Cl. B01d *21/24*

U.S. Cl. 210—242 17 Claims



Vessel for carrying slurries and means for draining slurry water from the ship's hold.

3,810,548

FLOATING APPARATUS FOR LIQUID COMPOSTING

Ronald S. Blough, Fairfield, Iowa, assignor to Fairfield Engineering and Manufacturing Company, Fairfield, Iowa

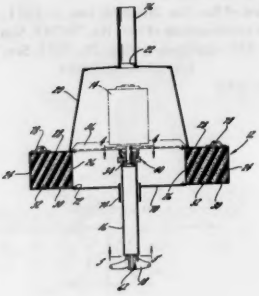
Filed Jan. 26, 1973, Ser. No. 326,948

Int. Cl. C02c *1/10*

U.S. Cl. 210—242 12 Claims

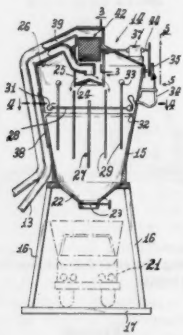
A floating apparatus for aerating and circulating animal waste material for use preferably in a realtively deep reservoir and comprising an outer float assembly for floatingly supporting the apparatus on the surface of the material in the reservoir, a roatable hollow shaft extending downwardly into the material, the lower end of which is adapted to permit air to exit therefrom, and axial thrust propeller rigidly attached to the lower end of the shaft, drive means for rotating the shaft and propeller to draw air downwardly out of the lower end of the shaft and generate a plurality of small bubbles and propel

them downwardly into the material. The apparatus also has a barrier including a hollow cylinder concentrically surrounding



the shaft, the barrier being adapted to prevent foaminated material from surrounding the drive means and shutting off the supply of air at the upper end of the hollow shaft.

3,810,549
DREDGE AND SLUDGE ALEMBIC
Sandor Gyorgy Kiss, 236 E. Sunset, Lombard, Ill.
Filed Nov. 24, 1972, Ser. No. 309,239
Int. Cl. B01d *33/02*
U.S. Cl. 210—297 **7 Claims**

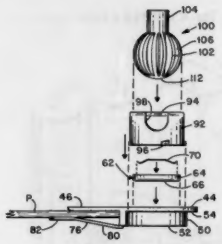


A combination dredge and sludge alembic, the latter comprised of a sludge receiving tank having vibratory means in its interior for settling out the sludge solids or residue, and a screen means through which discharged water must flow. The alembic, which may be stationary or portable, or mounted on a barge or dredge, is suitably located to permit the location of conveyor means therebeneath for transporting the slurry therefrom.

ERRATUM

For Class 211—41 see:
Patent No. 3,810,433

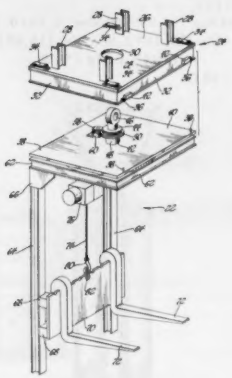
3,810,550
BALL, SOCKET AND CLIP DEVICE
Roland P. Longarzo, Valley Stream, N.Y., assignor to Ibex Precision Products, Inc., New York, N.Y.
Filed Sept. 15, 1972, Ser. No. 289,554
Int. Cl. A47f *7/00*
U.S. Cl. 211—69.6 **7 Claims**



A novel pen holder and integral pad support is provided comprising a socket mounted in a base member to which a spring clip is loosely attached for receiving a small pad of paper. A ball having a tubular stem integral therewith for receiving a pen or the like is snapped into the socket. A novel mold is disclosed for forming the ball and the tubular extension thereof.

The aforementioned abstract is neither intended to define the invention of the application, which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,810,551
STACKER CRANE ATTACHMENT
Gordon A. Bust, 2340 116th Ave., Allegan, Mich., and Dean A. Polzin, 12055 Elm St., Birch Run, Mich.
Filed Oct. 24, 1972, Ser. No. 300,070
Int. Cl. B66c *19/00*
U.S. Cl. 212—135 **11 Claims**



An overhead cable crane adapted to be moved in the horizontal plane along rails may be converted into a stacker crane through use of a horizontal platform supported below the crane carriage and adapted to engage a stacker attachment. The attachment includes a pair of vertical rails operative to support a pair of horizontally extending stacker forks. At their upper ends the rails are fixed to a horizontally aligned steel frame. An electric hoist mechanism fixed to the

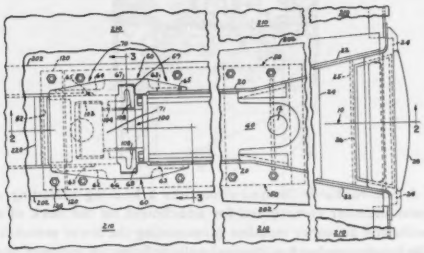
underside of the frame moves the stacker attachment vertically along the rails by means of its cable. The stacker platform is supported for rotation with respect to the crane carriage about a vertically aligned king-pin. The hook of the overhead crane is adapted to engage an eye of the king-pin to lift the stacker frame into engagement with the crane frame. Pins in the stacker are locked in holes in the crane frame to securely engage the two.

3,810,552

UNIVERSAL DRAFT POCKET ARRANGEMENT

Robert R. Girard, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Oct. 4, 1972, Ser. No. 294,936
Int. Cl. B61g *7/10, 9/12*
U.S. Cl. 213—8 **6 Claims**



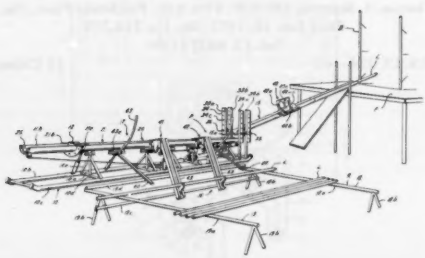
A universal draft pocket arrangement is disclosed comprising an integral adapter for receiving cushioning units of different manufacturers and a backstop retainer plate so that the backstop need not be removed when installing cushioning units of the same manufacturer as the backstop. The adapter is preferably made integral to insure that dimensional tolerances are maintained during welding of the adapter to the center sill and when cushioning units are installed therein.

3,810,553

PIPE HANDLING DEVICE

Roger A. Crocker, Box No. 448, Wickett, Tex., and Jim F. Schoolcraft, Wickett, Tex., assignors to said Crocker, by said Schoolcraft

Filed Aug. 31, 1972, Ser. No. 285,486
Int. Cl. E21b *19/00*
U.S. Cl. 214—2.5 **12 Claims**



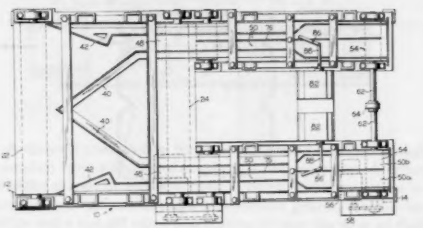
Apparatus for handling pipe including a frame having carriage means mounted therewith for receiving and moving a pipe length, lift means for lifting a pipe length from a pipe rack or the like upwardly to an intermediate position from which the pipe length is transferred to the carriage means by a platform arrangement and an inclined chute aligned with the carriage means whereby a pipe length is transferable therebetween.

3,810,554

FREEZER UNLOADING SYSTEM FOR HAMBURGER PATTIES

Eugene J. London, 324 College Dr., Allentown, Pa., and John L. Boncher, Jr., 25 Lewis St., Phillipsburg, N.J.

Continuation of Ser. No. 100,641, Dec. 22, 1970, abandoned.
This application Sept. 8, 1972, Ser. No. 289,187
Int. Cl. B65g *57/09*
U.S. Cl. 214—6 D **3 Claims**



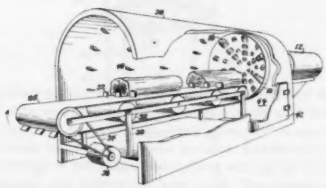
A freezer unloading system that accepts hamburger patties from a freezer discharge end or terminal in substantially semi-uniform rows of up to 12 patties across the terminal at a rate of 25,000 per hour which includes a means of a series of baffles or guides that orient the patties into single file rows. The rows are then discharged onto secondary conveyors which move the single file patties between a photoelectric light source and photo-receiver or other count sensor means which count each patty as it passes. The photoelectric cell works in conjunction with a count controller which is manually set for the desired number of patties to be stacked together on a discharge transition location. Immediately downstream of the photoelectric cell is a diverter gate which splits each secondary conveyor into two discharge lanes, which is accomplished automatically from one position to the other by an electric signal responsive to the count controller when a predetermined count is reached. The switching allows a predetermined number of patties to be collected at each discharge station, thereby allowing an operator to alternatively pick off stacks of patties for the packaging operation.

3,810,555

RAILROAD TIE REDUCER

Lubertus Bakker, and Eugene D. Krumm, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Aug. 16, 1972, Ser. No. 281,083
Int. Cl. B02c *7/12*
U.S. Cl. 241—278 R **3 Claims**



A material reduction device by which railroad ties may be quickly and effectively reduced to a finely divided form that promotes the disposal and ultimate decomposition thereof. Hardened drill bits are carried in a rotating head that is turned by a motor at a predetermined speed whereby the ties coming in contact with the drill bits of the rotating head are macerated into small pieces that are more readily subjected to natural decomposition or incineration.

3,810,556

TAMPER-PROOF EASY-OPENING BOTTLE CAP

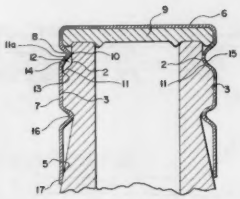
Henri Coursaut, Etroyes, Mercurey, France, assignor to Le Bouchage Mecanique (L.B.M.), Paris, France

Filed June 26, 1972, Ser. No. 266,343

Claims priority, application France, June 25, 1971, 71.23211; Mar. 20, 1972, 72.09622

Int. Cl. H61j *1/00*; B65d *55/02*

U.S. Cl. 215—7 16 Claims



Tamper-proof, easy-opening bottle cap and combination thereof with bottle neck having a smooth cylindrical pouring spout, a flaring neck, and an interposed cylindrical enlargement forming first and second, upwardly- and downwardly-facing shoulders. The cap has a roof and a depending skirt constricted into channels at the levels of the shoulders. The upper constriction is of smaller dimension axially of the neck, than the spout and thus forms or defines an annular space facilitating insertion of a cutting blade to sever the roof from the skirt. The upper constriction also acts to hold a sealing pad against the roof. The lower constriction engages the second shoulder and retains the cap in place. The skirt terminates below the second shoulder in contact with the neck.

3,810,557

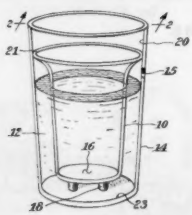
CHILLED DRINKING GLASS CONTAINER

William Cline, Huntington Station, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed July 6, 1972, Ser. No. 269,451

Int. Cl. B65d *1/16*

U.S. Cl. 215—12 2 Claims



A drinking vessel, disposed within a hollow cylinder sealed at its bottom end and open at the top. The cylinder is formed of material that can stretch somewhat when forces directed outward are applied uniformly against the inner wall. The drinking vessel is spaced from the cylinder. Prior to use, water is poured through an opening in the wall of the cylinder into the annular region between drinking vessel and cylinder and is frozen thereafter.

3,810,558

NON-REFILLABLE FITMENT

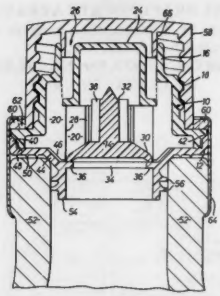
David J. Crisp, and Roger A. Ford, both of London, England, assignors to N. R. Fitments Limited, London, England

Filed Mar. 1, 1972, Ser. No. 230,883

Claims priority, application Great Britain, Mar. 29, 1971, 8045/71; June 24, 1971, 29679/71

Int. Cl. B65d *49/02*

U.S. Cl. 215—21 8 Claims



A non-refillable fitment comprises a housing including a lower member constructed for attachment on the neck of a bottle and an upper member surmounting the lower member. The lower member has internal walls defining an aperture and a valve seat surrounding the aperture. The upper member includes an annular wall extending in a direction away from the lower member and radial ribs extending inwardly from the annular wall. The radial ribs include radially directed inner edges which define cage-like guide means. A valve member located in the housing is disposed for movement towards and away from the valve seat within said cage-like guide means. A cap member surmounting the radial ribs has an upper surface that is substantially co-extensive with the upper end of the annular wall. The cap member has a smaller diameter than the upper end of the annular wall whereby the cap member and annular wall define an inner wall and outer wall, respectively, of an annular channel terminating in an annular liquid outlet orifice.

The fitment is used for preventing tampering with and unauthorised refilling of bottles containing high quality spirit such as Scotch whisky.

3,810,559

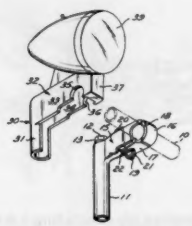
BICYCLE - ATTACHED ARTICLE CARRIER

Thomas A. Stanton, 350 S.W. 67th Ave., Pembroke Pines, Fla.

Filed Jan. 10, 1972, Ser. No. 216,379

Int. Cl. B62j *11/00*

U.S. Cl. 224—41 10 Claims



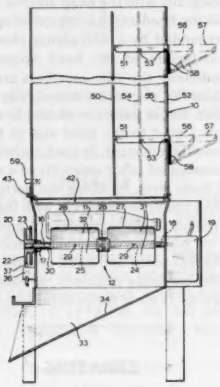
An article carrier for attachment to a bicycle at the front. This article carrier has internal surfaces which conform snugly to the external surfaces (including surface discontinuities) on the center post and neck of the bicycle to provide a non-slip attachment.

3,810,560

DISPENSER WITH ADJUSTABLE PADDLE VENDING MEMBER

Berend Stegeman, 16 Graham St., Belleville, Ontario, Canada

Filed May 21, 1973, Ser. No. 361,988
Int. Cl. G07f 11/24
U.S. Cl. 221—116 7 Claims



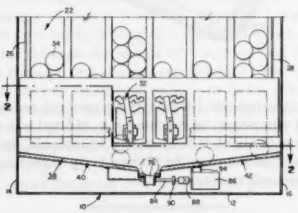
A vending machine for cans or bottles having a dispensing mechanism comprising a pair of paddle vending members onto which the cans or bottles are fed and from which these items are finally dispensed. A two piece shaft with a vending member on each has its two pieces coupled together by a two position coupling member, the position of the coupling being easily changed to alter the positions of the paddle vending members relative to each to thereby allowing vending of either short cans or long bottles by such change.

3,810,561

VENDING MACHINE DELIVERY APPARATUS

Lloyd D. Merkl, Mayville, Wis., assignor to Mayville Metal Products Co., Mayville, Wis.

Filed Mar. 17, 1972, Ser. No. 235,636
Int. Cl. B65h 5/00
U.S. Cl. 221—201 5 Claims



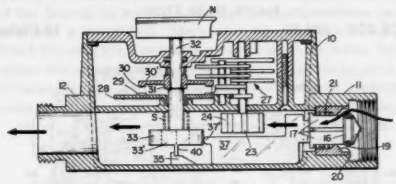
A vending machine delivery apparatus for dispensing containers of circular cross-section from a multiplicity of columns and including a removable tray comprising a pair of converging inclined planes or ramps, inclined at an angle of at least about 6°, including a trough at their confluence, a conveyor belt mounted in the trough and having one surface extending thereover and being driven to engage cans located in said trough, and transport them to the front end of the vending machine for discharge through a discharge port.

3,810,562

FLOWMETER

Robert E. Clarke, 1410 Saratoga Dr., Bel Air, Md.

Filed Oct. 13, 1972, Ser. No. 297,492
Int. Cl. B67d 5/30
U.S. Cl. 222—20 1 Claim



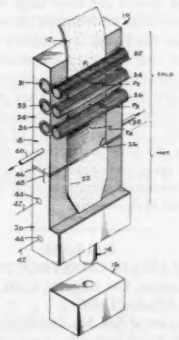
A meter for measuring the amount of fluid flowing through a conduit from a source of supply to a delivery point. A rotary impeller driven by the flow of fluid through the meter, an indicator shaft driven through a reduction gearing by the impeller and a cut-off valve functioning to stop the flow of fluid after the pre-set amount of fluid or the amount of fluid represented by a pre-set price on the indicator has been reached, the valve being a reciprocating spring actuated valve operated by a cam disc on the indicator shaft and an automatically operated clutch means on the indicator shaft to render the cam disc inoperative and hold the valve open for free unmetered flow of the fluid through the device when desired.

3,810,563

PLASTIC MELTING AND FEEDING MACHINE

Herbert La Mers, 2514 Greencastle Ct., Oxnard, Calif.

Filed July 14, 1972, Ser. No. 271,771
Int. Cl. B67d 5/62
U.S. Cl. 222—146 R 6 Claims



A simplified plastic extruder structure is provided having a wide and thin intake passage to receive wide and thin feedstock. A series of pairs of rollers are mounted in and spaced along the wide walls of the intake passage. Feedstock inserted into the passage is propelled therealong with great force. The intake passage and rollers are kept cold. The intake passage leads, through a short transition passage, into a hot heating passage. Feedstock is forced into the hot heating passage wherein it is melted and from which it can be extruded through an exit orifice. The short transition passage between the cold intake passage and hot heating passage is tapered to be larger at the hot passage end so that any back flowing material is chilled and forms a good pressure seal at the smaller end and yet does not seize through friction when it re-expands, as it is returned to the hot heating passage.

3,810,564

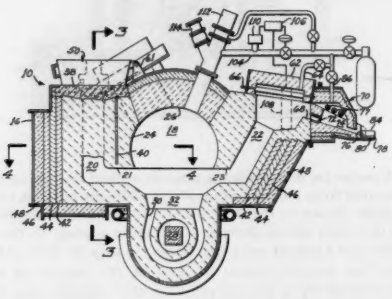
AIR PRESSURE DISCHARGE FURNACE HAVING PROTECTIVE ATMOSPHERE INLET AND OUTLET

Jerome B. Allyn, Graytown; John A. MacDougall, Toledo, both of Ohio, and John D. Nesbitt, Chicago, Ill., assignors to Midland-Ross Corporation, Toledo, Ohio

Filed June 18, 1973, Ser. No. 370,668

Int. Cl. B22d *37/00*

U.S. Cl. 222—146 H **16 Claims**



A furnace vessel for holding and pouring molten steel which vessel may be refilled intermittently while concurrently discharging molten steel at a controlled rate into a continuous casting mold. The furnace has a refractory lined and insulated reservoir which is pressurizable. Refractory lined and insulated pouring and filling spouts communicate with the bottom portion of the reservoir and extend vertically at least slightly above the maximum level of the steel in the reservoir. To prevent freezing of the metal in the spouts, heat generating means are provided at the top ends of the spouts and their bottom ends communicate with opposite ends of an inductively heated channel in the base of the reservoir. Also the cross sectional areas of the spouts are kept large with respect to their lengths so as to promote convection therein. The reservoir is pressurized to raise the liquid level above a flow restriction in the pouring spout and maintain the desired head above the bottom thereof to produce the required outflow rate. The flow restriction is designed to provide more precise control over the volumetric outflow rate of molten steel. Additional heat is supplied to the inlet and outlet ends of the flow restriction. Downstream from the flow restriction a means is provided for forming the cross sectional shape of the stream as it leaves the pouring spout. Protective atmosphere is provided for the exposed molten metal in the spouts.

3,810,565

MANIKIN CONSTRUCTION

Graydon C. Livingston, Los Angeles, Calif., assignor to Wolf & Vine, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 163,021, July 15, 1971, Pat. No. 3,769,134. This application Sept. 10, 1973, Ser. No. 395,614

Int. Cl. A41h *5/00*

U.S. Cl. 223—68 **16 Claims**

A manikin simulating at least the upper portion of the human anatomy, and having a separately formed head, and a neck that extends downwardly from the underside of the head to the torso. The upper end of the neck and the underside of the head have interfitting joint members which both key the head in a selected angular position and have matingly complementary opposed surfaces which determine the longitudinal position of the head and define a relatively inconspicuous parting line in the region of the juncture of the head and neck in the human anatomy. In one embodiment, the joint members are molded integrally with the head and the neck, as a non-circular socket in the head and a correspondingly shaped stub on the neck, surrounded by a non-planar shoulder for abutting against the underside of the head around the socket. In another embodiment, the joint members are formed by injection molded parts (a ring and a shaped cap) which fit or nest closely together. These parts are placed in the head and body molds, and are joined to the head and to the body as an incident to the molding thereof. In each embodiment, the joint is finished and concealed, after assembly of a selected head style on a selected body style, by filling the parting line with adhesive and coating the entire manikin with the usual finish. The position and nature of the joint make it possible to produce a wide variety of manikins with customized facial configurations, and different torso and neck configurations artistically simulating different body positions, without the necessity of providing a new body mold for each facial configuration.

ERRATUM

For Class 224—41 see:
Patent No. 3,810,559

3,810,566

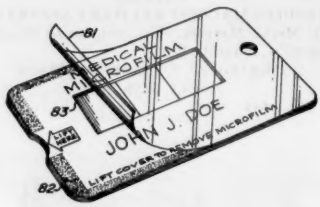
PERSONAL MEDICAL RECORD CARRIER

William E. Adams, 6279 E. Earl Dr.; Vernon L. Tufte, and Paul A. Tufte, both of 8719 E. Clarendon, all of Scottsdale, Ariz.

Filed Nov. 8, 1972, Ser. No. 304,852

Int. Cl. A44c *5/00*

U.S. Cl. 224—28 B **1 Claim**



Apparatus is provided for carrying medical records on the person and comprises, in combination, at least one microfilm chip bearing medical indicia and a receptacle for the chip adapted for attachment to the human body to enclose and protect the chip until needed.

3,810,567

TAPE DISPENSER ATTACHMENT

George David Malcolm, Sydney, New South Wales, Australia

Filed June 14, 1972, Ser. No. 262,556

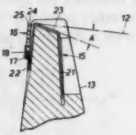
Claims priority, application Australia, July 13, 1971, 5530/71

Int. Cl. B26f *3/02*

U.S. Cl. 225—67 **4 Claims**

A tape severing and tab forming device formed integral with, but preferably forming an attachment for, a tape dispenser; the device incorporating a tape contacting member and a tape severing member. One of the members, preferably

the severing member, is moveable toward and away from the other whereby a free end portion of a tape extending from a



reel and between the two members is folded upon itself to form a tab responsive to movement of one of the members toward the other.

3,810,568

APPARATUS FOR TRANSPORTING WEBS OF PHOTOSENSITIVE MATERIAL THROUGH DEVELOPING MACHINES OR THE LIKE

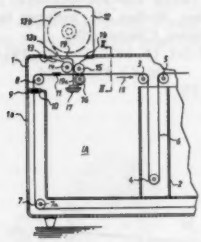
Wolfgang Kwiatkowski, Unterhaching; Milovan Vidakovic, and Horst Kempe, both of Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 15, 1973, Ser. No. 341,606

Claims priority, application Germany, Mar. 16, 1972, 2212689

Int. Cl. G03b *1/56*

U.S. Cl. 226—92 **23 Claims**



A developing machine for webs of photosensitive material wherein a band is trained over a set of guide rolls and can transport a separable clamp through a series of vessels containing developing, fixing and other liquids. A portion of the clamp extends sideways from the band and has a set of mushroom-, pin- or barb-shaped projections which are caused to penetrate through the leader of a web so that the latter is entrained through the developing machine. The projections can be attached to the leader outside or in the interior of the machine by causing the leader and the clamp to pass between two rollers one of which is grooved to receive the projections and is sufficiently close to the other roller to cause the projections to puncture the leader. The leader is folded over the clamp to reduce the strain on the punctured portions.

3,810,569

METHOD AND APPARATUS FOR GATHERING WEBS OF PAPER

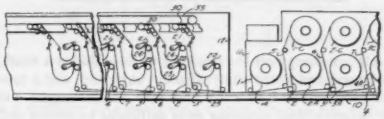
James B. Fulk, 14668 Wildberry Ln., Saratoga, Calif.

Filed Jan. 2, 1973, Ser. No. 320,663

Int. Cl. B65h *17/42*

U.S. Cl. 226—109 **18 Claims**

A method and machine for gathering together in superposed and in exact timed relationship a plurality of webs of paper from independent rolls of paper. The webs on the rolls have a prepunched row of regularly spaced holes extending longitudinally and along at least one edge thereof. Each web is pulled from a roll and is guided to a lower moving endless belt having pins thereon which enter certain of the holes in the web from the under side thereof and pull it into a horizontal position. Each web is passed from one such belt to another to gather the webs into superposed relationship. Eqch web has a slack portion in the form of a festoon therein after it is pulled from a roll, and each web has a frictional restraint at the end of the festoon to maintain the web in taut condition as it approaches a lower belt. There may be an upper moving belt which has pins thereon which enter holes in the webs, from the upper side thereof, and said upper belt extends beyond all of the lower belts and maintains control of the webs continuously while they are moving over the spaced lower belts and also



while they are moving between the spaced lower belts. The upper belt may partially overlap another moving lower belt having pins thereon which enter holes in the webs other than those occupied by the pins on the upper belt. The last mentioned lower belt controls the movement of the webs while operations are being performed thereon and discharges them from the machine. The method enables rolls to be prepunched and stored indefinitely under different climatic conditions then selected for use in any number of multi-part forms and gathered together into exact lengths. Additionally, the method permits relatively heavy rolls of paper to be mounted near the floor level and at one end of the machine for convenience and alacrity in handling and replenishment.

3,810,570

TAPE DRIVING MECHANISM IN RECORDING AND/OR REPRODUCING APPARATUS

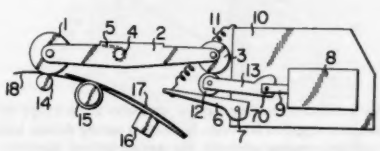
Tadashi Nagaoka, Nishinomiya, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 30, 1972, Ser. No. 311,000

Claims priority, application Japan, Dec. 1, 1971, 46-113399

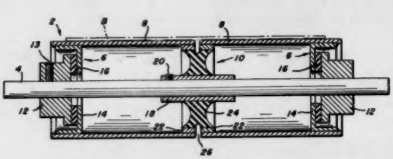
Int. Cl. B65h *17/22*

U.S. Cl. 226—176 **7 Claims**



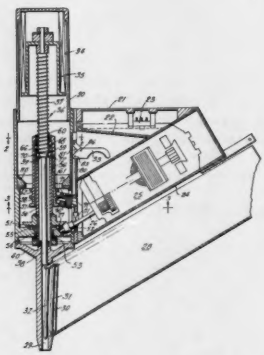
A pinch roller mechanism for driving a tape-like article, comprising a pinch roller arm having a pinch roller rotatably mounted thereon and being urged to move the pinch roller away from a capstan, and an actuating member provided adjacent said pinch roller arm and reciprocated with a predetermined stroke, said actuating member at an end of its stroke engaging said pinch roller arm through a projection or projections having a curved edge, thereby causing said pinch roller arm to make a pivotal movement against the biasing force.

3,810,571
SELF-CENTERING ROLLS
James J. Futula, Perry Township, Lawrence County, Pa., assignor to Ryman Engineering Company, Ellwood City, Pa.
Filed Apr. 12, 1973, Ser. No. 350,618
Int. Cl. B65h 17/20
U.S. Cl. 226—192 10 Claims



A self-centering roll for tracking webs includes a shaft, an end web secured to the shaft adjacent each end, and a tubular rim section secured to each end web and arranged with a space between their adjacent ends sufficient to permit deflection of these adjacent ends toward the shaft. Each of the end webs includes a compressible member, such as rubber, for transmitting a load from the rim portion to the shaft. It is preferred to use a central web including a compressible member for transmitting load from the rim portions to the shaft and to have the space within the roll entirely enclosed.

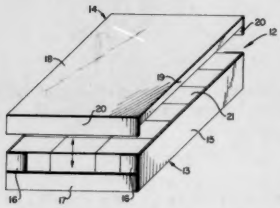
3,810,572
ELECTRIC NAILER
Bruce Malkin, Norwalk, Conn., assignor to Electro-Speed Tool Corp., Norwalk, Conn.
Filed Nov. 17, 1972, Ser. No. 307,415
Int. Cl. B25c 1/06
U.S. Cl. 227—132 11 Claims



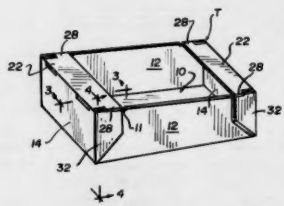
An automatic nailing device employs a cartridge of nails which are supplied in series beneath a spring driven hammer. An electric motor charges the spring-driven hammer after each operation.

3,810,573
TWO PIECE STORAGE AND SHIPPING CARTON
Lee E. Russell, 2015 Idlewild Ave., Tampa, Fla., and Douglass M. Stegner, 1816 Circle Rd., Ruxton, Md.
Filed Mar. 23, 1972, Ser. No. 237,478
Int. Cl. B65d 5/26
U.S. Cl. 229—32 6 Claims

A storage and shipping carton or case comprising a bottom section or tray in which cans, jars, bottles, boxes and other containers for various commodities, as well as loose commodities such as fruits, certain vegetables, soap and the like, may be stored for shipment at a later date, and from which the contents can be readily removed for labeling or for repacking to provide split cases or other customer needs not apparent until time for shipment, with a minimum amount of labor involved and without risk of damage to the tray. The other lid or cover section is applied after labeling of the individual containers and repacking and may include indicia identifying the contents of the case and the purchaser and will be new at the time of application to provide a case having a generally new and undamaged appearance.



3,810,574
SELF-LOCKING TRAY
Jeffrey M. Gardner, Moline, Ill., assignor to Container Corporation of America, Chicago, Ill.
Filed Oct. 16, 1972, Ser. No. 297,846
Int. Cl. B65d 5/24
U.S. Cl. 229—31 FS 4 Claims

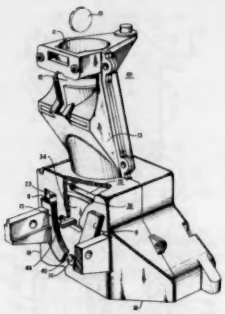


A self-locking tray formed from a unitary blank of foldable paperboard having bottom, side and end walls with corner gusset members interconnecting the side and end walls and having portions disposed in interlocking engagement with end flanges at the upper ends of the tray.

3,810,575
COIN COLLECTING APPARATUS
Glen A. Breitung, and Harold Jacob Hershey, both of Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 29, 1972, Ser. No. 310,270
Int. Cl. B65g 11/04
U.S. Cl. 232—57.5 5 Claims

A coin hopper having increased capacity and a reduced number of parts utilizes a single-piece coin trap supported by rollers or linkages on a rotatable selector vane and journals on the trap. The selector vane is connected to a relay and rotates in an appropriate direction determined by the collect or

refund signal applied to the relay. The rotation of the selector vane locks appropriate ones of the journals in position causing



the trap to rotate thereabout under the coin load and dump the coins into the appropriate collect or refund channel.

3,810,576

ULTRACENTRIFUGE ROTOR

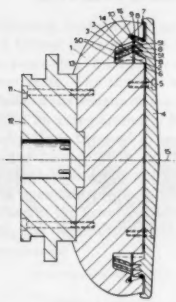
Alfred Polson, Milnerton, Cape Town, and Karl Josef Kaufmann, Rondebosch, Cape Province, both of South Africa, assignors to South African Inventions Development Corporation, Pretoria, Transvall, South Africa

Filed Sept. 24, 1970, Ser. No. 75,146

Claims priority, application South Africa, Sept. 29, 1969, 69/6838; Sept. 29, 1969, 69/6839; Sept. 29, 1969, 69/6840; Sept. 29, 1969, 69/6841

Int. Cl. B04b *1/00*

U.S. Cl. 233—37 **7 Claims**



An ultracentrifuge is adapted to provide fractionation of virus particles without packing the virus into a pellet but instead concentrating it into a small volume of fluid in an outer collection groove. Thin-layer centrifugation is achieved by means of a plurality of sedimentation walls giving a large area for sedimentation and a small sedimenting distance. Sedimentation walls are inclined to an axis of rotation of the ultracentrifuge by an angle between 0° and 90°, preferably about 20° to cause outward transference of a sediment to a collection groove. Sedimentation walls parallel to the axis of rotation have valves operable at desired times, during rotation of the ultracentrifuge to permit transferring a supernatent fluid from one chamber outwardly to other chambers. A penetrable mat on the parallel sedimentation walls and a ring in the collection groove inhibit backwashing of sediment during deceleration of the ultracentrifuge. Relatively low centrifuging rotational speeds are used.

3,810,577

ERROR TESTING AND ERROR LOCALIZATION IN A MODULAR DATA PROCESSING SYSTEM

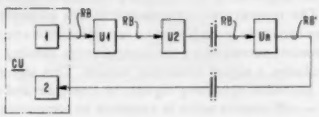
Heinz Drescher, Schoenaich; Hans Hermann Lampe, Oberjesingen; Peter Rudolph, Schoenaich, all of Germany, and Franco Simonini, Vimercate, Italy, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1972, Ser. No. 300,635

Claims priority, application Germany, Nov. 25, 1971, 2158433

Int. Cl. G06f *11/04*

U.S. Cl. 235—153 AC **13 Claims**



In a modular data processing system wherein the individual processing units are linked with each other via a bus system and with a central control, a tester is provided in each processing unit. The tester includes a test reply information register, an address generator for generating the processing unit address, a compare circuit for comparing the address transferred from the control unit via the address bus and stored in the address register with the processing unit address, a pattern generator for terminating the address bus with a given bit pattern of correct parity, a parity check circuit for signalling parity errors on the address bus, and a parity circuit for generating the correct parity bit from the bit pattern on the data bus. The output bits of these parity circuits together with the generated processing unit address are fed to the test reply information register for transmission. The tester also includes a control circuit for controlling the transmission of the addresses, the data patterns, and the test reply information.

3,810,578

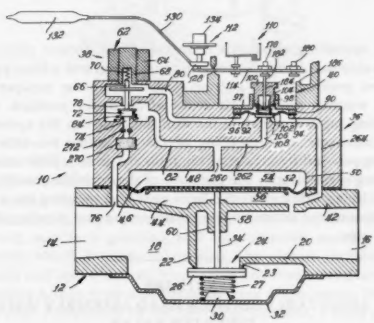
BULB MODULATING GAS VALVE

Russell B. Matthews, Goshen, Ind., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Oct. 17, 1972, Ser. No. 298,289

Int. Cl. F16k *31/145*

U.S. Cl. 236—80 **12 Claims**



The disclosure of this invention describes a gas valve having an on — off control valve and a modulator valve which will modulate the gas flow from high fire to low fire over a predetermined temperature throttling range. The on — off control valve and modulator valve are mounted on top of a central body having a main gas passageway interconnecting its inlet and outlet. A main valve is used to open and close a main

port formed within the gas passageway and a pressure diaphragm, which forms one wall of a closed chamber, is operably connected to this main valve such that increases in pressure within the chamber tend to open the main gas port. The on — off control valve includes a two-position valve means for providing the opening and closing of a second port disposed in a bypass passageway extending between the inlet and closed chamber. A remote thermostat provides actuating signals for energizing or deenergizing the on — off control valve to reposition the two-position valve means. A modulating valve means is used to open and close a third port formed in a passageway between the closed chamber and outlet, and a temperature responsive means operates the modulating valve means in response to temperature variation sensed at a local point. The temperature responsive means includes an output member movable in response to temperature variations of the environment surrounding the temperature sensing means and also includes a signal actuating means. This signal actuating means provides actuating signals to energize and deenergize the on — off control valve in response to temperature changes about the local temperature sensing means.

3,810,579

AUTOMATIC SPRINKLING APPARATUS

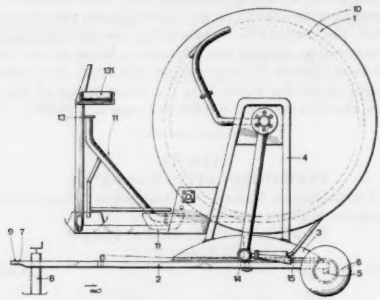
Hugo Roland Di Palma, Lot et Garonne, Fauillet, France

Filed Apr. 17, 1972, Ser. No. 244,494

Claims priority, application France, Apr. 19, 1971, 71.13802; Apr. 13, 1972, 72.12990

Int. Cl. B65h *75/00*

U.S. Cl. 239—197 **11 Claims**



A sprinkling apparatus comprising two distinct parts, one movable part or carrier securing sprinkling, and a fixed part or frame provided with a drum and securing the recuperation and winding around this drum of an under pression water feeding pipe, connecting the said fixed part to the sprinkling movable one, the travelling of the sprinkling movable part being secured by means of the pipe and from a jack actuated during sprinkling by the pressure of the sprinkling water, this jack being fitted onto the fixed part and securing the rotary motion of the drum for the recuperation and winding of the said pipe.

3,810,580

ADJUSTABLE SHOWER HEAD ASSEMBLY WITH DIVERTER VALVE

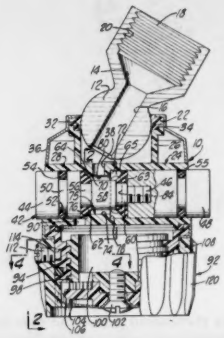
Jack Rauh, Hacienda Heights, Calif., assignor to Modern Faucet Manufacturing Company, Los Angeles, Calif.

Division of Ser. No. 153,578, June 16, 1974, Pat. No. 3,722,799. This application Oct. 30, 1972, Ser. No. 301,991

Int. Cl. B05b *1/32*

U.S. Cl. 239—460 **4 Claims**

A shower head assembly having an upper and lower portion, wherein the upper portion has a diverter valve mechanism slidably mounted therein, and the lower portion of the assembly is in threaded contact with the upper portion and



moveable with respect thereto, thereby altering the exit apertures of the shower head assembly and adjusting water flow therefrom.

3,810,581

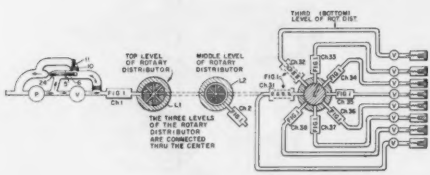
TIMED PULSED FUEL INJECTION APPARATUS AND METHOD

Samuel Rhine, RFD 424A, Tillson, N.Y., and Merle Robert Showalter, 4733 Shoremeade Rd., Richmond, Va.

Filed Mar. 8, 1973, Ser. No. 339,153

Int. Cl. F02m *47/02*

U.S. Cl. 239—533 **11 Claims**


TOP LEVEL OF ROTARY DISTRIBUTOR
MIDDLE LEVEL OF ROTARY DISTRIBUTOR
THIRD (BOTTOM) LEVEL OF ROT DIST.
THE THREE LEVELS OF THE ROTARY DISTRIBUTOR ARE CONNECTED THRU THE CENTER

A timed pulsed fuel injection device which meters fuel continuously and distributes flow pulses to *n* nozzles through a rotary distributor pressure cascading device which totally isolates the metering event from variations and dynamic effects in the *n* injection lines.

3,810,582

IRRIGATION SYSTEM

Hilmer G. Lodge, Pala, Calif., assignor to Conflow Irrigation Systems, San Diego, Calif.

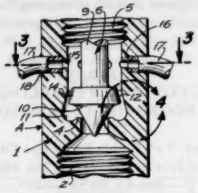
Continuation-in-part of Ser. No. 131,225, April 5, 1971, abandoned. This application Oct. 16, 1972, Ser. No. 297,959

Int. Cl. B05b *1/14*

U.S. Cl. 239—542 **6 Claims**

An irrigation system utilizing a set of irrigation devices joined to risers connected to a common supply line, the supply line terminating in a flush member adapted, when open, to permit flushing of the supply line to remove particulate

matter; each irrigation device including a distributor manifold having a set of outlets connected to corresponding distributor



tubes of small diameter, and a metering valve, the valve having means for causing turbulent flow to effect pressure reduction prior to entrance of water into the distributor tubes.

3,810,583

BURNERS FOR CHEMICAL ANALYSIS

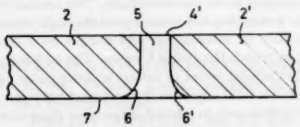
Richard Alexander George, Cambridge, England, assignor to Pye Limited, Cambridge, England

Filed Jan. 30, 1973, Ser. No. 328,034

Claims priority, application Great Britain, Feb. 2, 1972, 4899/72

Int. Cl. B05b *1/00*

U.S. Cl. 239—597 **2 Claims**



A burner for chemical analysis such as flame spectroscopy, is provided with a burner plate having a flame aperture comprising a long slot extending through the upper and lower surfaces of the burner plate. The slot has a longitudinal profile taken at right angles to the length of the slot which is at least partly arcuate about an axis parallel to the length of the slot and tapers inwardly from the fuel inlet region adjacent the lower surface of the burner plate. In one embodiment the lower edge of the slot is defined by an arc of a circle at least 3 mm in radius. The specified profile minimizes turbulence in the slot region adjacent the lower surface of the burner plate and hence reduces the deposition of sample material on the burner plate.

ERRATUM

For Class 241—278 see:
Patent No. 3,810,555

3,810,584

GRINDING APPARATUS FOR FIBROUS MATERIAL

Albrecht Kahmann, Weingarten, Germany, assignor to Escher Wyss GmbH, Ravensburg, Germany

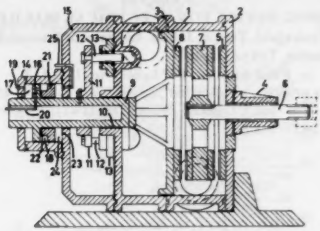
Filed Sept. 14, 1972, Ser. No. 288,943

Claims priority, application Germany, Sept. 17, 1971, 2146548

Int. Cl. B02c *7/14*

U.S. Cl. 241—37 **7 Claims**

Grinding device, more especially a disc refiner for the paper industry; a rotor and a stator arranged in a housing; the stator guided radially but non-rotatably relatively to the housing and displaceable axially relatively to the rotor; a hydraulic servomotor provided for the displacement of the stator; on the servomotor an adjustable device for limiting the displacement of the stator in the direction to the rotor; the pressure chamber of the servomotor which is intended for moving the stator away from the rotor is provided with an axially displaceable abutment piston; means are provided for adjusting and keeping constant a required position of the abutment piston; the position of the abutment piston limits the displacement of the main piston of the servomotor and in that way the displacement of the stator.



3,810,585

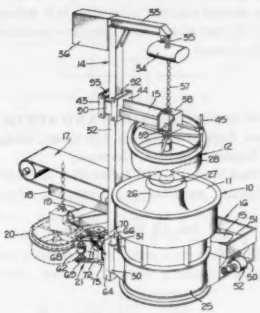
MATERIAL HANDLING SYSTEM FOR VIBRATORY MILLS

John R. Strom, Fullerton, Calif., assignor to Sweco Inc., Los Angeles, Calif.

Continuation of Ser. No. 825,860, May 19, 1969. This application May 5, 1972, Ser. No. 253,272

Int. Cl. B02c *17/00, 23/02;* **B24b** *31/06*

U.S. Cl. 241—171 **14 Claims**



A material handling system for vibratory finishing or grinding mills into which are placed materials and abrasive media and wherein the materials are operated upon. In a finishing mill the materials are parts which are finished, polished, or deburred, and in a grinding mill the materials usually are chemicals which are reduced in size. The system includes a vibratory mill into which such materials and media are placed, a vibratory screen separator for separating the materials from media after completion of the operation thereon, a hoist pan for handling the media or material and media, and a jib hoist system for moving and positioning the pan. Media or material and media are loaded into the pan, and same is lowered to the top of the finishing machine causing the load to be evenly dumped into the finishing machine. After the finishing operation, the material may be moved or transported in any suitable manner to any further operation stage, and the media is returned to the hoist pan. A pan driving mechanism is provided for rotating the pan as the media is supplied thereto

from the separator or mill such that the pan is evenly loaded. Several bottom-dumping pan configurations are disclosed which provide a relatively even discharge of the media into the mill when the pan engages the mill.

3,810,586

WINDING DEVICE FOR ELECTRICAL MACHINERY

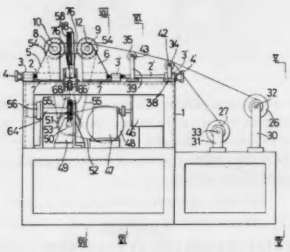
Shohei Tsukajaki, Tokyo, Japan, assignor to Kabushiki Kaisha Meidensha, Tokyo, Japan

Filed Aug. 17, 1971, Ser. No. 172,413

Claims priority, application Japan, Sept. 5, 1970, 45-77605

Int. Cl. H02k *15/085*; **H01f** *41/08*

U.S. Cl. 242—1.1 A **3 Claims**



Winding device for electrical machinery, namely for winding electric wire from a drum several times between winding frames through at least two holes of an iron core of the machinery, bonding an end portion of the wire wound on said winding frames, effecting the winding by rotating the frames, and detaching the wound wire on the core from the frames, wherein the device comprises at least two of the above-mentioned winding frames, provided with a mechanism for detaching the wound electric wire after it is wound on the iron core, through the two holes, and a motor-operated mechanism for rotating the frames.

3,810,587

COIL WINDING METHOD AND APPARATUS

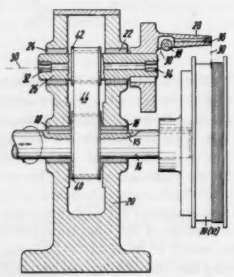
Willi Muskulus, Bergen-Enkheim, Germany, assignor to Blazer Droll KG., Neiderdorfelden, Germany

Filed Mar. 23, 1972, Ser. No. 237,265

Claims priority, application Germany, Mar. 31, 1971, 2115579

Int. Cl. H01f *41/06*

U.S. Cl. 242—7.03 **22 Claims**



A method and apparatus for winding a coil for an electric machine or the like onto a polygonal former. A wire guide is rotated through a circular path relative to the former on which the coil is being wound; and additional movements are superimposed on said circular path such that the resultant path is flattened, relative to a circle, along at least the longest side of the polygon and /or the angular speed of the former and the wire guide is decreased at least at the angular range where the wire is laid onto said longest side.

3,810,588

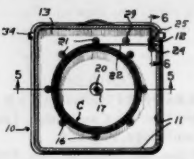
DISPENSING CONTAINER ENABLING A COIL OF A RESILIENT, EDGED METAL BAND TO BE FORMED THEREIN

Ralph P. Mahoney, Two Lights Rd., Cape Elizabeth, Maine

Filed July 28, 1971, Ser. No. 166,737

Int. Cl. B65h *19/00*

U.S. Cl. 242—55 **8 Claims**



A container is disclosed that enables a long length of an edged metal resilient band, paper mill doctor blade stock for example, to be formed as a coil therein and dispensed to permit desired lengths to be cut therefrom. The container, which also serves as a shipping case, has a port through which an end of the band may be introduced and caught by a detachable winding key by which the coil is formed. The coil is within and confined by a circular series of rollers and the outer end of the contained band is held adjacent the exit port between a pair of members rotatable only in a band-dispensing direction. One of the rotatable members is movable into and out of its band-nipping position relative to the other to permit an end of another band to be introduced through the port when the container is to be refilled.

3,810,589

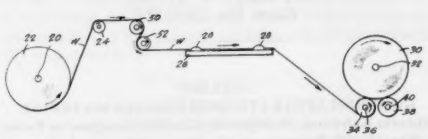
PROCESS AND APPARATUS FOR WINDING SHEET MATERIAL

Jean-Marie Mousseau, 6304 P. E. Lamarche, St. Leonard, Montreal 458, Quebec, Canada

Filed Jan. 28, 1972, Ser. No. 221,647

Int. Cl. B65h *17/08*; **B65b** *59/00*

U.S. Cl. 242—66 **10 Claims**



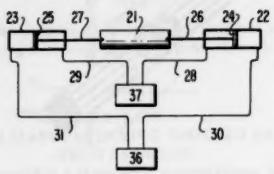
There is provided an apparatus and process for providing the desired density and consistency characteristics in rolls of wet material — e.g., newspaper rolls, which are used in subsequent operations such as newspaper printing and where the properties of the roll are to be matched to those required during the subsequent operation.

3,810,590

METHOD AND MEANS FOR MOVING A SHIFTABLE HOLDER FOR A ROLL CORE OR THE LIKE

Yoshiaki Miyake, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 25, 1972, Ser. No. 257,035
Claims priority, application Japan, May 27, 1971, 46-36433
Int. Cl. B65h 19/02
U.S. Cl. 242—68.4 5 Claims



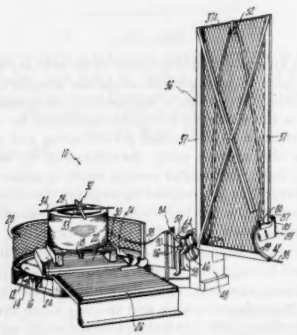
Two oil pressure cylinders are disposed on both sides of a roll core. Each cylinder has a piston and a piston rod which is connected to the end of the roll core. Oil pressure pipes are connected between the roll core-side end of each cylinder and an oil pressure actuator for shifting the roll core. Additional oil pressure pipes are connected between the other end of each cylinder and another actuator for chucking to hold the roll core.

3,810,591

DISPENSING MACHINE FOR COIL STOCK

Robert L. Haven, Enfield, Conn., assignor to The Stanley Works, New Britain, Conn.

Filed July 13, 1972, Ser. No. 271,420
Int. Cl. B21c 47/16
U.S. Cl. 242—78.6 10 Claims



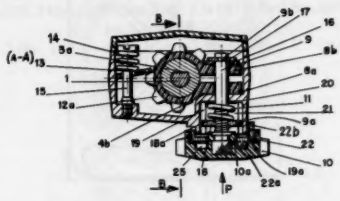
A machine having a horizontally disposed turntable for paying-out stock from an outer periphery of a coil supported on the turntable, an accumulator, a feed roll for pulling stock from the coil and feeding paid-off stock to the accumulator, a common drive for operating the turntable and the feed roll in unison, a control switch in the accumulator operable for activating and deactivating the common drive responsive to entangling of the stock upstream of the feed roll, and an antislack unit for controlling and tensioning lengths of stock paid-out from the coil.

3,810,592

FISHING REEL

Pierre L. Host, Cluses, France, assignor to Etablissements Carpano & Pons S.A., Cluses, France

Filed July 2, 1971, Ser. No. 159,288
Claims priority, application France, July 8, 1970, 70.25360
Int. Cl. A01k 89/02
U.S. Cl. 242—84.51 A 3 Claims



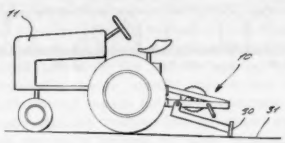
A casting reel with a torque limiter of which the adjustment member is located at a point enabling the angler to actuate this member without releasing the crank, comprises means for reducing or even zeroing the braking torque value by simply exerting an axial pressure with the hand against said adjustment member, the release of said axial pressure causing the braking torque to resume instantaneously its preset value.

3,810,593

HAND-CRANK TOY WINCH

Melvin F. Krysl, R.R. 2, Stuart, Nebr.

Filed Dec. 21, 1972, Ser. No. 317,231
Int. Cl. B65h 75/40
U.S. Cl. 242—86.5 1 Claim



A mechanical toy for children, the toy consisting of a mechanical drive that is mounted on a toy vehicle such as a farm tractor, the drive consisting of a frame on which is mounted a rotatable spool or drum operated through gearing by a hand crank, and an anchor pivotally attached to the frame.

3,810,594

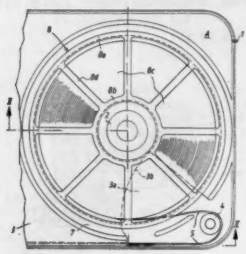
CARTRIDGE FOR MOTION PICTURE FILM

Josef Gersch, Unterhaching; Otto Wiedemann, Starnberg, and Werner Kiessling, Unterhaching, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 1, 1972, Ser. No. 285,863
Claims priority, application Germany, Sept. 4, 1971, 2144408
Int. Cl. G03b 23/02
U.S. Cl. 242—194 9 Claims

A cartridge for 8-millimeter motion picture film has a housing wherein a partition extends between a first chamber for a supply of convoluted unexposed film and a second chamber for a takeup reel and has an opening through which the film passes toward the takeup reel. The supply of unexposed film loosely surrounds a core of the partition and the first chamber contains a rigid disk-shaped confining member having a relatively short outer flange which surrounds the outermost convolution of unexposed film and is surrounded by an extension

of the partition. The coupling member can rotate with the supply of unexposed film and has a relatively long inner flange which extends between the core and the innermost convolution of unexposed film. The main portion of the confining



member is located between the supply of unexposed film and an end wall of the housing and has coplanar radial spokes extending between the inner and outer flanges. These flanges prevent clockspringing of unexposed film in the first chamber.

3,810,595

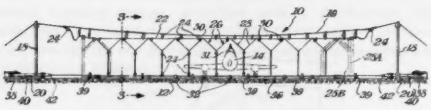
AIRCRAFT ARRESTING BARRIER

Donald B. Doolittle, Wilmington, Del., assignor to All American Industries, Inc., Wilmington, Del.

Filed Dec. 5, 1972, Ser. No. 312,254

Int. Cl. B64f *1/02*

U.S. Cl. 244—110 C **21 Claims**



An array of open loops having a maximum dimension slightly smaller than the wing spread of an aircraft to be arrested are laterally detachably hung from a pair of suspension lines stretched above and across the runway. A number of these arrays are staggered relative to each other to provide enough of the loops to securely engage and restrain an aircraft which penetrates any portion of the barrier. Slide connectors attach lower portions of the loop to a horizontal cross runway linear component attached to an energy absorbing device. When an aircraft impinges upon the barrier, the loops break away from the suspension line and freely move to engage stronger larger dimensional portions of the aircraft and apply the restraint of the energy absorbing device to the aircraft from behind and below it. The loops are conveniently deployed in a pentagonal configuration with their peaked tops connected to the suspension lines, their sides breakably connected to each other and bottoms attached by the slide connectors to the cross runway energy absorbing lines—one for each array. The lower cross runway lines are bunched together for optional engagement by a hook-equipped aircraft. The horizontal deployment of the slide connectors behind the vertically deployed loops permits the nose wheels of the aircraft to pass over and clear the cross runway lines before the engaging movement of the barrier is actuated. The upper suspension lines and loops are effectively made of relatively unyielding materials, such as a relatively inelastic textile or a textile covered metallic cable and the lower horizontal linear components are efficiently provided by an energy absorbing material, such as nylon.

3,810,596

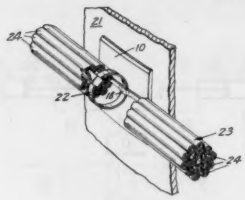
FLEXIBLE BASE FOR CABLE TIE

Robert A. Elm, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 16, 1972, Ser. No. 253,829

Int. Cl. F16l *3/08*

U.S. Cl. 248—74 PB **5 Claims**



A flexible base for a cable tie, made by a simple extruding, cutting and shaping operation, serves as an inexpensive but fully effective means for adherently fastening the strap-like cable tie to flat or rounded structural surfaces.

3,810,597

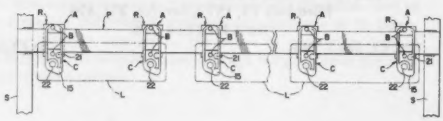
LAVATORY CARRIER BRACKET AND SUPPORT

George J. Flegel, and Nicholas G. Scheuer, both of Michigan City, Ind., assignors to Josam Manufacturing Co., Michigan City, Ind.

Filed May 5, 1972, Ser. No. 250,575

Int. Cl. F16b *1/00*

U.S. Cl. 248—214 **8 Claims**



To mount an array of lavatory and other sanitary or plumbing fixtures each requiring a pair of carrier arms or other wall mounted support elements, a horizontally elongated support plate rigid in the wall, and a bracket assembly for each element comprising a front bracket plate casting and rear plate clamped on the support plate therebetween by upper and lower clamp bolts. On the flat casting back, to either side of a top bolt aperture, an interrupted lip engages the support plate top edge, spacing the top bolt from shearing engagement; the casting having at least one further threaded aperture receiving threaded lavatory support mounting means, and plural locations adapted for tapping to receive mounting bolts of diverse lavatory support elements. Thus assemblies are easily clamped in proper adjusted positioning and spacing along the support plate for mounting different fixtures with diverse support elements.

3,810,598

MAIL BOX MOUNTING DEVICE

Leroy E. Bender, Bakersfield, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

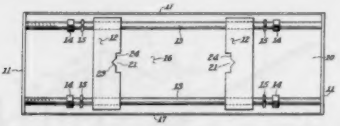
Filed Sept. 5, 1972, Ser. No. 286,553

Int. Cl. F16m *13/02*

U.S. Cl. 248—221 **1 Claim**

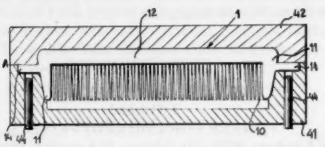
A mounting unit upon which a standard rural mail box may be mounted. The underside of the device includes two shaped jaws slidably fitted over threaded rods which run the length of

the underside of the device. The shaped jaws may be gripped about the top end of any conventional vertical support



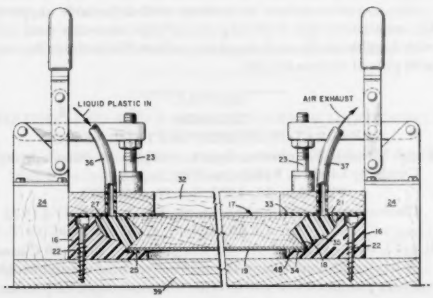
member for the purpose of fastening the mail box and the attached mounting unit permanently to the said vertical support member.

3,810,599
MOLD FOR MANUFACTURING TOOTHED ARTICLES SUCH AS COMBS
Massima Fornari, Via 1 Maggio 61, Vedano Olona, Italy
Filed Dec. 27, 1971, Ser. No. 211,942
Int. Cl. B29c *7/00*
U.S. Cl. 249—67 **1 Claim**



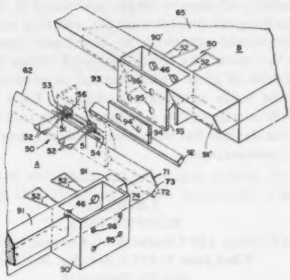
In the molding of an article, such as a comb, comprising a back from which project a plurality of side-by-side substantially parallel teeth, use is made of a two-part mold which (instead of being split in a plane registering substantially with the plane of the article or the axes of the teeth, as is conventional) is split in a plane to which the axes of the teeth are perpendicular, so that removal of the article from the mold takes place in a direction parallel to the axes of the teeth.

3,810,600
AN EDGE MOLD HAVING EPOXY RESIN WALLS
Gary E. Smith, and John G. Bailey, Jr., both of Collinsville, Va., assignors to Chem Dynamics, Inc., Martinsville, Va.
Filed Dec. 1, 1972, Ser. No. 311,135
Int. Cl. B29c *1/02*
U.S. Cl. 249—95 **5 Claims**



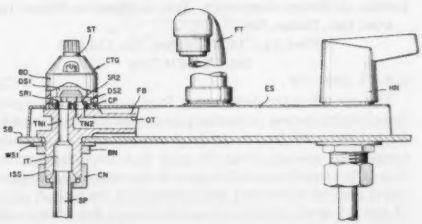
A mold provided for forming a shaped integral resinous edge about a wood panel has epoxy resin walls about a cavity conforming to the size and configuration of a pattern having a shaped edge, said mold being adapted to support in the cavity a panel without the shaped edge with a gap thereabout corresponding to the shaped edge of the pattern.

3,810,601
FORM FOR USE IN BUILDING CONSTRUCTION
Oleg V. Miram, 759 Flood Bldg., San Rafel, Calif.
Division of Ser. No. 134,623, April 16, 1971, Pat. No. 3,724,157. This application Aug. 21, 1972, Ser. No. 282,402
Int. Cl. B28b *7/22*
U.S. Cl. 249—189 **10 Claims**



A method of constructing buildings of modules is disclosed in which the modules are formed of overhead and wall panels fabricated with means embedded therein having no portion extending beyond the boundaries thereof for distributing the weight thereof to a plurality of points spaced from each other along their edges, which edges are mechanically interconnected by removable hinge joinder means extending between the embedded means in adjacent panels when they are in selected juxtaposition. Means for raising the overhead panels to an elevated position including said removable hinge joinder means are described. Preferred means for forming the overhead and wall panels in the selected juxtaposition and preferred removable hinge joinder means are disclosed. Preferred methods and means for interconnecting vertically and horizontally adjacent modules into structural units of the final building structure before or after removal of said removable hinge joinder means are described.

3,810,602
CERAMIC DISK FAUCET
Richard Grant Parkinson, Somerville, N.J., assignor to American Standard Inc., New York, N.Y.
Filed Apr. 17, 1972, Ser. No. 244,503
Int. Cl. F16k *31/60*
U.S. Cl. 251—304 **17 Claims**



This covers a control valve for a kitchen or like faucet embodying a cartridge or container housing two contiguous

ceramic disk elements and a vertical rotary stem. One of the elements is positioned at the base of the stem and is a rotatable member while the other element is a stationary member upon which the rotatable member is slid. The stationary member has inlet and outlet ports both so arranged that, when the movable member is rotated about its axis through a limited angle, the movable member is rotated about its axis through a limited angle, the movable member will be rotatably slid over both ports of the stationary ceramic member to determine the relative sizes of the openings of both ports. Either hot water or cold water, whichever is fed to the inlet port, may be transmitted through the valve and the angular position of the movable member will alone control the volume of water flow through the valve. The slidable member includes a cavity having a plurality of steps or ridges positioned in the path of the water reaching the slidable member, and they reduce the noise level that would otherwise be developed upon water flow through the valve. The entire flow path within the valve is essentially free of parts which expand or contract to vary the flow as the water temperature changes. Each angular valve setting will correspond to a particular flow rate which may be changed as desired but will remain independent of changes in the water temperature.

3,810,603

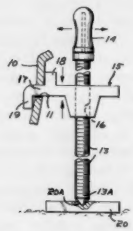
BUMPER JACK

Anthony B. Metz, 129 Chester Ave., Chelsea, Mass.

Filed June 9, 1972, Ser. No. 261,155

Int. Cl. B66f *3/08*

U.S. Cl. 254—100 **4 Claims**



A bumper jack is disclosed that consists of a holder through which an elongated supporting screw is threaded. The jack requires that bumpers have fore and aft opening ports and the holder includes a hook portion dimensioned to be inserted inwardly through a port and a stop that is engageable with the outer surface of the bumper when the screw is vertically disposed then to cooperate with the hook in connecting the jack positively to the bumper while the jack is in service.

3,810,604

TANK AGITATING AND CLEANING SYSTEM

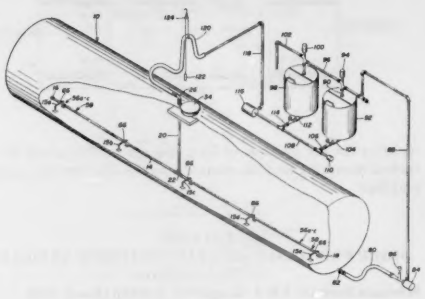
Jerome A. Reiter, Lancaster, Tex., assignor to Reiter Industries, Inc., Dallas, Tex.

Filed Apr. 16, 1971, Ser. No. 134,698

Int. Cl. B01f *5/04*

U.S. Cl. 259—18 **9 Claims**

The specification describes a food product tank agitation and cleaning system comprising an elongated pipe which is extended along the length of a food product tank. A plurality of grooves are spaced along the pipe to form spray nozzles. A vertically extending conduit extends through an opening in the upper portion of the tank and connects to the pipe. A plurality of spaced apart clamps are connected to the bottom of the tank and include hooks for removably clamping the pipe a predetermined distance above the bottom of the tank. When it is desired to agitate the food product in the tank, pressurized air is applied through the conduit and is directed from the grooves in the pipe to bubble up through the food product. When it is desired to clean the interior of the tank, pressurized fluid is forced through the conduit and is sprayed from the



pipe to clean the interior of the tank. The pipe is constructed and is supported in such a way that food products do not accumulate in the area of the pipe.

3,810,605

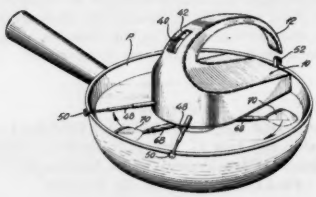
STIRRER FOR COOKING VESSELS

Benoit Lambert, 8750 Marjolaine, St-Leonard, Montreal 457, Quebec, Canada

Filed Aug. 4, 1972, Ser. No. 278,073

Int. Cl. B01f *7/16*

U.S. Cl. 259—108 **3 Claims**



The invention relates to a stirrer with adjustable supports for installation and centering on variable diameter pots and with longitudinally and angularly adjustable paddles for use with pots of various depths.

3,810,606

CARBURETOR OUTPUT CONTROL DEVICE

Kenji Masaki, Yokohama, Japan, assignor to Nissan Motor Company Limited, Yokohama City, Japan

Filed Jan. 26, 1973, Ser. No. 326,993

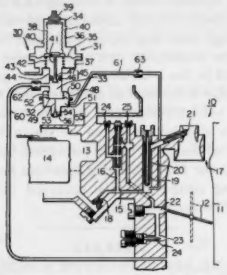
Claims priority, application Japan, Feb. 1, 1972, 47-11972

Int. Cl. F02m *1/10, 1/14*

U.S. Cl. 261—39 A **10 Claims**

A device for optimizing the air/fuel ratio of a combustible mixture produced in a carburetter when atmospheric pressure and temperature deviate from given levels. When a bellows extends in response to the deviation from the given levels, atomospheric air is supplied downstream of a carburetter throttle valve through a diaphragm valve assembly responsive

to the extension of the bellows during idling or light-load operation of an engine, while air is supplied to a main mixture supply passage through another diaphragm valve assembly responsive to the operation of the first-mentioned assembly during full-load operation.



3,810,607

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

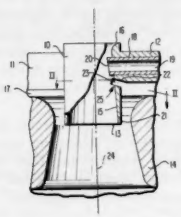
Hans-Jochen Blohm, Neustadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Nov. 4, 1971, Ser. No. 195,672

Claims priority, application Germany, Nov. 5, 1970, 2054430

Int. Cl. F02m *19/08*

U.S. Cl. 261—78 R **6 Claims**



A carburetor for internal combustion engines in which a radial outlet arm for fuel or fuel and equalization air terminates in the central bore of a ring-shaped pre-atomizer which projects into the diffusor, at least one approximately radial air channel thereby terminates in the central bore while the discharge opening of this air channel is disposed between the outlet arm and the atomizer discharge into the diffusor.

3,810,608

METHOD AND APPARATUS FOR QUENCH HARDENING VALVE SEATS

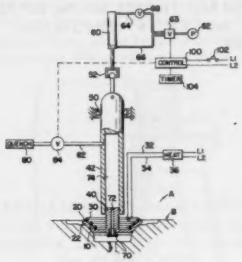
Robert V. Vickers, Shaker Heights, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Nov. 24, 1972, Ser. No. 309,087

Int. Cl. C21d *1/62*

U.S. Cl. 266—4 E **9 Claims**

An apparatus for hardening the conical surface of a valve seat of an internal combustion engine, which device comprises an iron having an outer conical surface matching the conical surface of the valve seat, means for heating the iron to a temperature at least as high as the quench hardening temperature of the valve seat surface, means for moving the iron into a position with the conical surface of the iron against the conical surface of the valve seat, timer means for maintaining the conical surfaces together for a preselected time, means for moving the iron away from the valve seat surface, and means for quenching the valve seat surface to provide a hardened wear surface.



3,810,609

SHAFT-TYPE DIRECT-REDUCTION FURNACE

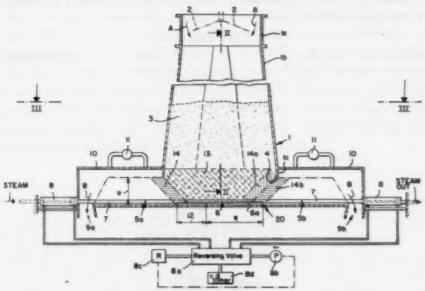
Ludwig Von Bogdandy, Oberhausen-Sterkade; Helmut Becker, Bottrop; Rudolf Grewer, Oberhausen; Heinz Dieter Pantke, Essen-Frintrop, and Ulrich Pohl, Mulheim/Ruhr, all of Germany, assignors to Thyssen Niederrhein GmbH Hutten und Walzwerke, Essener Oberhausen, Germany

Filed Nov. 3, 1971, Ser. No. 195,261

Claims priority, application Germany, Nov. 3, 1970, 2053950

Int. Cl. C21b *13/02*

U.S. Cl. 266—25 **3 Claims**



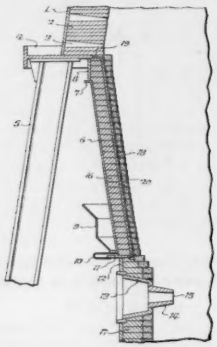
A shaft-type direct-reduction furnace in which a descending charge in an upright furnace chamber of particulate iron oxide or like iron-oxide bodies moves countercurrent to a rising reducing-gas stream (e.g., a mixture of carbon monoxide and hydrogen) and sponge iron is discharged at the bottom of the furnace. The discharge mechanism comprises a horizontally reciprocable discharge plate underlying the mouth of the furnace such that a conical pile of sponge iron is formed thereon and the mouth of the furnace bottom remains free from gas-distributing or discharge-mechanism obstructions.

3,810,610

BOSH CONSTRUCTION FOR METALLURGICAL FURNACES

Frank A. Berczynski, Williamsville, N.Y., assignor to Andco Incorporated, Buffalo, N.Y.

Filed Sept. 11, 1972, Ser. No. 287,725
Int. Cl. C21b 7/06; C21c 5/44
U.S. Cl. 266—43 8 Claims



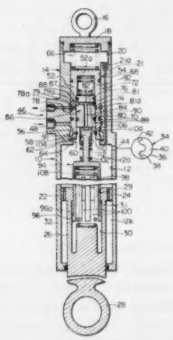
A metallurgical furnace bosh construction has a protective liner over the heat conductive lining along the interior surface of the outer jacket, the protective liner forming an adhesion surface for slag formed as a by-product of the metallurgical reaction within the furnace, the liner being positioned substantially outside the tuyere raceway initially and being covered by a temporary layer of refractory material.

3,810,611

HYDROPNEUMATIC SUSPENSION UNIT FOR A ROAD VEHICLE

Naganori Ito, and Hiroshi Aikawa, both of Tokyo, Japan, assignors to Nissan Motor Comapny, Limited, Yokohama City, Japan

Filed Feb. 7, 1973, Ser. No. 330,323
Claims priority, application Japan, Feb. 8, 1972, 47-13258; Feb. 8, 1972, 47-13259
Int. Cl. F16f 5/00
U.S. Cl. 267—64 R 26 Claims



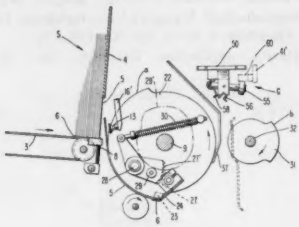
A hydropneumatic suspension unit adapted to be mounted between a wheel supporting means and a body of a road vehicle for maintaining the vehicle body level substantially constant irrespective of weight and load of the vehicle. The hydropneumatic suspension unit includes besides a hydropneumatic spring unit, a cylinder body having a cylinder head and a cylinder chamber filled with hydraulic fluid under pressure, and a main piston slidably received in the cylinder chamber. The cylinder head is formed with a hydraulic fluid inlet and an outlet, which communicate with the cylinder chamber through inlet and outlet passages, respectively. The hydropneumatic suspension unit also includes inlet and outlet valves provided in the inlet and outlet passages, respectively. The inlet passage is formed of an inner wall of an axial bore formed in the cylinder head and an outer periphery of a first floating piston slidably received in the axial bore of the cylinder head, whereas the outlet passage is formed of a radial bore formed in the first floating piston and bores formed in a second floating piston slidably received in an axial bore formed in the first floating piston.

3,810,612

METHOD AND APPARATUS FOR HANDLING SHEET MATERIALS, SIGNATURES AND THE LIKE

John O. McCahon, Simsbury, Conn., and William J. Byrne, Pearl River, N.Y., assignors to The Smyth Manufacturing Company, Bloomfield, Conn.

Division of Ser. No. 706,926, Feb. 20, 1968, Pat. No. 3,591,165. This application July 2, 1971, Ser. No. 159,394
Int. Cl. B65h 5/08
U.S. Cl. 271—11 5 Claims



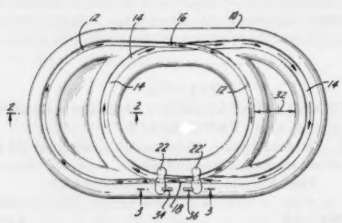
Apparatus for feeding signatures from a stack thereof comprising means for transferring signatures one at a time from a feed hopper by rotary grippers and feed rollers to linearly traveling grippers on an endless conveyor from which the signatures are suspended to travel edgewise.

3,810,613

EXERCISE AND WEIGHT REDUCTION DEVICE

Mildred M. Jorwa, 71 Lincoln Ave., Fairlawn, N.J.

Filed Aug. 13, 1973, Ser. No. 388,119
Int. Cl. A63b 23/04
U.S. Cl. 272—57 R 4 Claims



Two elliptical channels which have congruent major axes are utilized as tracks. The channels are integrally molded in a base which supports upright members which terminate in hand grips. Alternatively, the upright members may be attached to the ceiling. Set within and constrained to move respectively inside of each of the channels is a skate which en-

gages the bottom of the channel through an integrally depending vertical connecting member which terminates in a spherical ball bearing. A user places his feet on the skates and, while grasping the hand grips, moves his feet in the elliptical paths defined by the tracks. Such use exercises the entire body with particular emphasis on the upper thighs and hips.

3,810,614

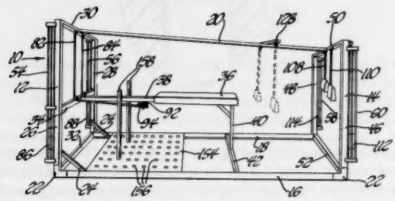
TRAINING DEVICE FOR SWIMMERS

Philip C. Hessburg, 1169 Three Miles Dr., Grosse Pointe, Mich.

Filed June 29, 1972, Ser. No. 267,675

Int. Cl. A63b *69/10*

U.S. Cl. 272—71 **3 Claims**



A training device for swimmers which includes a framework with vertically disposed end frame sections having a cushioned body support provided therebetween to support a swimmer in an elevated prone or supine position for relatively free arm and leg movement, weights in weight cages at each corner of the end frame sections, hand hold grips tied to weight lifting ropes received through pulleys on the front frame section for fore and aft activated arm-shoulder muscle group toning, and foot slings tied to weight lifting ropes received through pulleys on the back frame section for vertical activated leg-pelvic muscle group toning. For easy access to the weights, the weight cages in which they are housed are provided with an open side and are pivotally mounted.

3,810,615

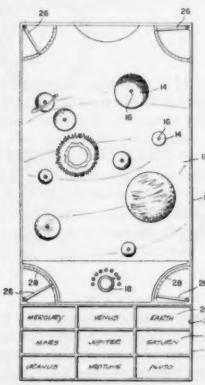
EDUCATIONAL GAME: SPACE STATION

Kenneth W. Miller, Dallas, Tex., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Apr. 23, 1973, Ser. No. 353,894

Int. Cl. A63f *9/18*

U.S. Cl. 273—1 E **4 Claims**



A game employing a game board showing all nine planets. Nine different card receiving means, each associated with a different planet, are disposed on the board. Nine sets of cards, each disposed removably in the corresponding means, each carry questions associated with the particular planet on one face as well as answers to the questions on the opposite face. Each planet is provided with a lamp. A ten position manually operative switch and battery are connected in circuit with the lamps whereby any lamp can be energized individually or all lamps can be dark. Four score keeping devices in the form of moveable pointers are also provided on the game board.

3,810,616

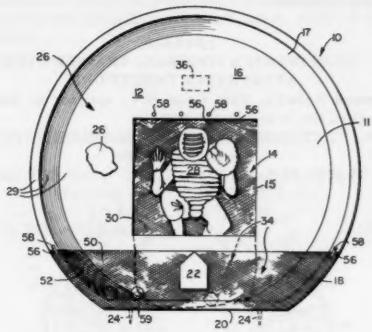
TARGET APPARATUS WITH BALL CATCHING MEANS

Lillian A. Murphy, 145 Elliott St., Haverhill, Mass.

Filed Dec. 26, 1972, Ser. No. 318,544

Int. Cl. A63b *69/40*

U.S. Cl. 273—26 A **6 Claims**



A backstop device of low cost, lightweight, thin sheet material adapted to stop and collect thrown balls or the like. The device comprises a deeply dished nestable shell having a flat, chordal base segment upon which it stands on edge, and fence means for retaining the balls within the rim or flange of the shell. The shell surface against which the balls are directed is conveniently lined with some energy absorbing material to reduce the noise and distribute the impact forces. The ball collection means is of fabric or netting to permit nesting and a back brace is foldable for the same purpose.

3,810,617

BOWLING PIN LOADING APPARATUS AND METHOD

August Schmid, Schwerzenbach, Switzerland, and Georges Goens, Heverlee, Belgium, assignors to Patentverwertungs- und Fianzierungsgesellschaft Serania AG, Glarus, Switzerland

Filed Sept. 20, 1972, Ser. No. 290,547

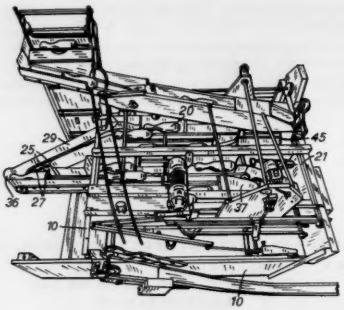
Claims priority, application Switzerland, Sept. 22, 1971, 13872/71

Int. Cl. A63d *5/09*

U.S. Cl. 273—43 D **12 Claims**

Bowling pins are conveyed consecutively in an essentially horizontal plane along a common path alongside of which are loading bins, one each for the reception of a pin in a spotting

position, the pins being conveyed along the path for transfer into the first available empty bin, the conveyors being



preferably rubber ropes or belts with deflectors which are electrically controllably operated to deflect pins laterally if a pin is to be loaded.

3,810,618

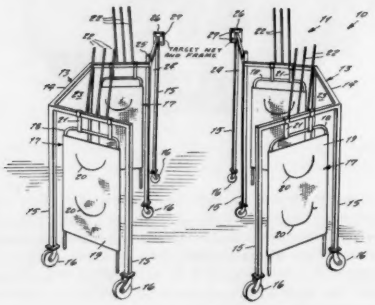
QUARTERBACK FOOTBALL TRAINER WITH ATTACHABLE TARGET UNIT

Zygmund Nedwick, Glen Cove, N.Y., assignor to Athletics Devices, Inc., Glen Cove, N.Y.

Filed Nov. 8, 1971, Ser. No. 196,661

Int. Cl. A63b *67/00*

U.S. Cl. 273—55 R **1 Claim**



An apparatus for developing skill in playing football, the device consisting of a target game unit and a training unit which are detachably attached together; and in which the training unit includes a pair of upstanding frames mounted upon caster wheels so to be movable across the ground, the frames supporting several simulated player rusher's consisting of a fabric sheet stretched on a depending frame and the sheet having slits; and the target game unit consisting of netting pockets formed on a fabric sheet supported along its edges by tension springs from a tubular metal frame provided with means for being retained in an erect position while players toss a ball or the like into the pockets.

3,810,619

BOWLING BALL AND METHOD OF CLOSING AND OPENING A CAVITY OPENING THEREIN

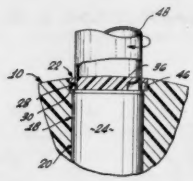
Wilson G. Taylor, 2901 W. Valley, Alhambra, Calif.

Filed Oct. 3, 1972, Ser. No. 294,645

Int. Cl. A63b *37/00*

U.S. Cl. 273—63 E **7 Claims**

The system generally comprises a typical bowling ball having an elongate cavity extending inwardly generally radially a predetermined distance toward the center and a cap fitted at its outer end to restore the contour of the ball. The axis of the cavity usually extends at a substantial angle to the plane generally including the thumb and finger holes, and it may be left empty or filled with a weighting mass e.g. a barium compound, to vary the weight and performance characteristics of the ball. The cap is disc-like with a spherical outer surface to match the contour of the ball and has at least one recess in the



marginal portion extending inward toward the axial center. The diameter of the disc is slightly more than that of the outer end of the cavity to produce an interference or force fit so that it cannot be removed without destroying it, thus preventing unauthorized weight changes from going unnoticed. To make an authorized change, a hole is drilled in the cap large enough to intersect the recess, leaving a ring which may be easily snapped out because of the great reduction in hoop compression force.

3,810,620

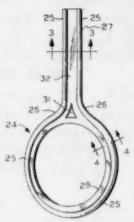
SPORTS RACKET

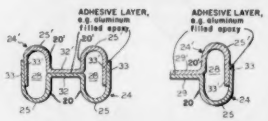
Charles R. Decker, III, 455 N. 5th St., Warsaw, Ill., and Gregory K. Harris, Rural Rt. 2, Mooar, Keokuk, Iowa

Filed Dec. 28, 1971, Ser. No. 213,040

Int. Cl. A63b *49/12*

U.S. Cl. 273—73 H **6 Claims**





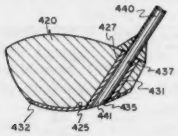
A frame for a sports racket comprising a pair of adhesively united metallic stampings and a handle for same. Each stamping is made from a metallic blank initially shaped similarly to the outline of the finished frame. Each blank is stamped to form a channel around its periphery. The channels in the respective blanks being so sized that when the blanks are assembled the outer legs of the channels overlap one another. The handle may be a molded rigid structural plastic foam.

3,810,621

HOSEL-LESS WOOD TYPE GOLF CLUB

Truett P. Mills, 1700 Second Ave., Tuscaloosa, Ala.

Division of Ser. No. 74,656, Sept. 23, 1970, Pat. No. 3,759,517. This application Sept. 18, 1972, Ser. No. 289,799
Int. Cl. A63b 53/02
U.S. Cl. 273—80.2 10 Claims



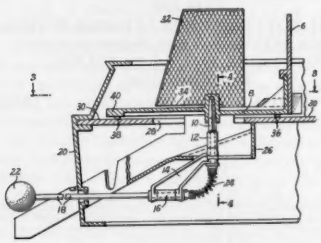
A wood type golf club having a club head with a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, the club head having a shaft receiving opening in the top surface at said heel portion and said top surface being a continuation of the general contour of the club head from the toe to the heel portions. The club head is provided on its bottom surface with a sole plate which is associated with a shaft retainer that is received in the shaft receiving opening in the club head. A shaft is received in the shaft retainer and secured therein.

3,810,622

HOCKEY GAME PLAYING PIECE

Calvin L. Payne, Jr., Hastings-on-Hudson, N.Y., assignor to Tudor Metal Products Corporation, Brooklyn, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,990
Int. Cl. A63f 7/06
U.S. Cl. 273—85 A 2 Claims



A hockey game goalie accessory which, by appropriate mechanisms, is enabled to turn about nearly on its own vertical axis on one side of a simulated cage at the instance of a rod extending from the frame for the game, which is finger manipulated, to turn on its own axis in the horizontal plane The goalie piece is rotated on a sweep arm which serves additionally to provide a sweep member on the other side of the cage which is used simultaneously to strike a puck in that location and thereby send it to a place on the game board where play may be resumed in the normal fashion.

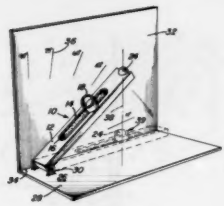
3,810,623

BALL AND CUP GAME DEMONSTRATING PROPERTIES OF INERTIA

Jimmy L. Jacobs, 3409 Turlane Dr., 31, Hyattsville, Md.

Filed Mar. 21, 1973, Ser. No. 343,239
Int. Cl. A63b 71/02
U.S. Cl. 273—101 6 Claims

A lever is pivoted at one end near a playing surface while the opposite free end is held at some position above the playing surface. A ball is made to rest on the free end of the lever while a cup-shaped receptacle is adjustably positioned along its length. When the free end of the lever is released, the cup describes an arc while the ball falls in a separate, vertically downward, free fall path, due solely to the effect of gravity. If the receptacle is properly positioned, the described arc will intersect the free fall path and the ball will be received in the receptacle.

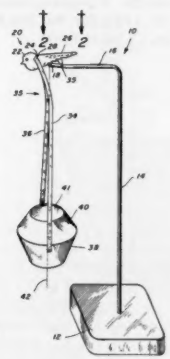


3,810,624

MYSTERY GAME WITH BALANCED PACKETED CONTAINERS

Edward R. McNemar, Rt. 1, Box 118C, Hulbert, Okla.

Filed July 16, 1973, Ser. No. 379,252
Int. Cl. A63b 71/02
U.S. Cl. 273—102.1 C 8 Claims

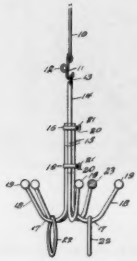


This disclosure describes a balance game in which a container is supported by means of a semi-rigid strap, or strip, which is fastened to a small elongated article that is supported on a wire frame. The strap fits into a sloping slot or notch in the elongated article in such a way that there is a twisting or bending of the strap which tends to hold the article in a somewhat horizontal position, supported on a frame, in a groove in the bottom of the article. A container is supported by the strap. As weights are thrown into the container there is additional pull downward on the straps which causes the article to tilt and as it tilts the notch then permits it to slide off of the frame when the downward force, due to the weights in the container, is sufficiently great. A plurality of notches are provided so that the device can be made more or less sensitive to weights.

3,810,625
SUSPENDED QUOIT TARGET

Jack N. Gulling, 109 E. Elsa Rd., Jupiter, Fla.

Filed May 11, 1972, Ser. No. 252,242
Int. Cl. A63b 71/04
U.S. Cl. 273—104 2 Claims

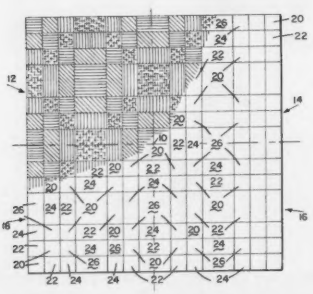


This invention basically comprises a flexible resilient suspension element suspending in limited rotational relationship, a rigid support tube or rod, having adjustably secured thereto a plurality of anchor flutes. The invention further embraces a plurality of rings for manually tossing at the resiliently suspended anchor flutes. The supporting rod or tube and the plurality of anchor flutes may be casted as a single unit, or the anchor flutes may be casted as a single unit, but it is desired for packaging to have each of the units separate.

3,810,626
BOARD GAME APPARATUS

William C. Eberle, 22 June St., Worcester, Mass.

Filed Nov. 30, 1972, Ser. No. 310,855
Int. Cl. A63f 3/00
U.S. Cl. 273—131 AB 16 Claims

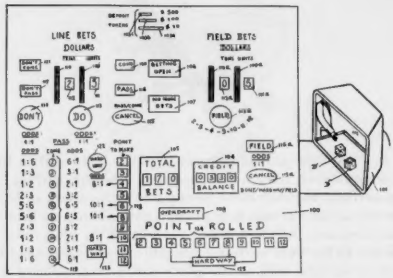


A game board for a plurality of games, this game board comprising a plurality of main sections, all of which are substantially identically provided with a certain number of square (spaces) of different colors in a symmetrical arrangement. Any one of the main sections may be used to play upon, or games may be played using two or more of the main sections simultaneously. Also, several different types and colors of pieces may be utilized with as many different colors appearing on the game board. The game board may be of different sizes and shapes, i.e., square, rectangular, triangular, etc., and there may be as many main sections as may be desired.

3,810,627
DATA-PROCESSING SYSTEM FOR DETERMINING GAINS AND LOSSES FROM BETS

David Levy, 230 W. 54th St., New York, N.Y.

Continuation-in-part of Ser. No. 699,509, Jan. 22, 1968, abandoned. This application Apr. 2, 1970, Ser. No. 25,227
Int. Cl. A63b 71/06
U.S. Cl. 273—138 A 21 Claims

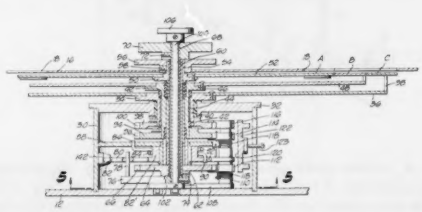


In an establishment in which wagers are placed on the outcome of a fortuitous event, such as the roll of a pair of dice, the spin of a roulette wheel, the result of a horse race, or the like, a player operates a remote selector panel on which a register displays a previously established credit balance. Bets on the event are made from the panel by wagering any amount up to the limit of the credit balance. The amount wagered is automatically deducted from the credit balance, and in the event of a win the amount wagered is multiplied by a predetermined odds factor for the event and added to the credit balance.

3,810,628
PLURAL ROTATABLE DISCS CHANCE DEVICE

Elaine G. Vigan, 1932 Weepah Way, Hollywood, Calif.

Filed Aug. 25, 1971, Ser. No. 174,726
Int. Cl. A63f 5/04
U.S. Cl. 273—142 HA 5 Claims



A plurality of of indicia bearing discs are rotatably supported in a windowed casing. The discs are indexed by ratchet wheels and pawls. Manual turning of a handle against spring tension in one direction moves the pawls in a circular arc with the pawls moving the ratchet wheels and discs therewith. The pawls on nearing the end of their circular arc contact one end of a pivoted timer lever having a suction cup thereon so as to press the suction cup against the casing. When the handle is released, the spring tension moves the pawls in the opposite direction with the pawls moving the ratchet wheels and discs therewith. On the pawls nearing the end of their circular arc in this opposite direction, they contact the other end of the suction held timer lever and are pivoted out of contact with the ratchet wheels which lets the discs spin freely. On sufficient air entering the suction cup through a adjustable air valve, the suction cup releases, thereby pivoting the timer lever out of

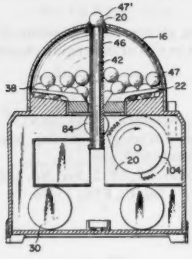
contact with the pawls which then let the pawls pivot into contact with the ratchet wheels to index the discs. A knob controlled cam may be utilized to pivot one of the pawls out of engagement with its ratchet wheel so that seond handle can be used to rotate the disc associated therewith with respect to the other indexed discs.

3,810,629

MIXING AND DISPENSING RANDOM SELECTION DEVICE

Hideyuki Yamamoto, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed Mar. 15, 1973, Ser. No. 341,727
Claims priority, application Japan, July 3, 1972, 47-78533
Int. Cl. A63b *71/06*
U.S. Cl. 273—144 A **9 Claims**



A random selection device which, by way of exemplification but not by way of limitation, may be used to mix and select at random indicia bearing pieces during the playing of the popular games such as "Bingo". The device includes a casing provided with a downwardly sloping surface and a cover removably attached to the casing and extending over the surface. The indicia bearing pieces are positioned within the cover and supported generally by the surface of the casing. A blade is operatively mounted for rotation near the surface of the casing to continuously mix the pieces while a rod is operatively mounted for reciprocating movement between a first position wherein the top or lift portion thereof is adjacent the surface immediately below the most centrally positioned of the pieces and a second position wherein the top portion thereof is adjacent an opening provided in the cover. The user pushes a switch causing a miniature electric motor to be energized activating the blade through a gear train. In this manner, the rotating blade continuously mixes the pieces. During mixing, the gear train activates the rod causing same to move upwardly. Thus, the "selected" piece is lifted upwardly eventually passing through the opening of the cover permitting the user to retrieve same.

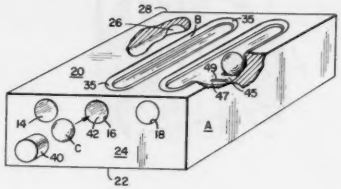
3,810,630

GAME HAVING CAPTURED MARBLE EXPOSED FOR DIGITAL MANIPULATION

Michael Gonzales, Sebastopol; Richard H. Benton, and William G. Moore, both of Mill Valley, all of Calif., assignors to Leland Dibble, Jr., Santa Rosa, Calif.

Division of Ser. No. 158,002, June 29, 1971, Pat. No. 3,706,457. This application June 23, 1972, Ser. No. 265,895
Int. Cl. A63f *9/08*
U.S. Cl. 273—153 S **4 Claims**

A plurality of side by side cylindrical bores are each drilled from a vertical edge of a block with one edge of each bore adjacent a planar and major surface of the block. At least some of the bores are partially exposed to the surface of the block by routing out a channel to expose less than a diameter of the cylindrical bore through the major surface to the exterior of the block. Spheres having a diameter less than that of the bore, but greater than that of the channel, are inserted interior of the bore. The bore is plugged at its end to trap the spheres. The spheres are thus held within the bore and yet exposed to external view and digital manipulation through the routed channel. According to one aspect of the invention, transverse ridges and valleys interior of the bore can be used to hold the



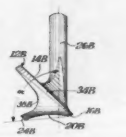
spheres in preselected positions for marking turns in the game relating to sequential movement of a plurality of spheres in a plurality of exposed bores. According to another aspect of the invention, two exposed passages can be communicated to a hidden passageway and trap; through manipulation of observed spheres and each marked with different indicia, the order of spheres can be changed.

3,810,631

GOLF CLUB HEAD OF THE IRON TYPE HAVING A CONCAVE SOLE

Joseph M. Braly, Kennett Square, Pa., assignor to Con-Sole Golf Corporation, Chadds Ford, Pa.

Filed July 24, 1972, Ser. No. 274,563
Int. Cl. A63b *53/04*
U.S. Cl. 273—167 A **4 Claims**



A golf club of the iron type having a novel golf club head comprising a striking face with a leading lower edge, a toe, a heel, and a novel concave sole; said concave sole imparting improved ball striking characteristics such as improved dynamic stability of the head in contact with the ground and minimize deceleration of the club head speed in contact with the ground. The golf head is useful for the manufacture of golf clubs of the iron type.

3,810,632

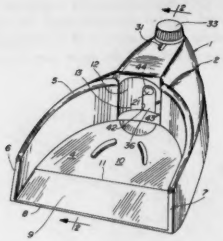
GOLF PUTTING PRACTICE DEVICES

John R. Brandell, Glenview, Ill., assignor to Brandell Products Corporation, Rosemont, Ill.

Filed May 30, 1972, Ser. No. 257,849
Int. Cl. A63b *57/00*
U.S. Cl. 273—179 A **4 Claims**

A golf putting practice device embodying a kicker for returning a ball to a person making a putt into the device, and wherein the kicker may be freely slid into and out of the device with a straight-line motion between supporting members disposed at the opposite ends thereof which are effective to prevent turning of the kicker around its longitudinal axis, the kicker having an elongated abutment with parallel sides, with the abutment slidably mounted in an elongated slot in

one supporting member and having the parallel sides disposed in abutting engagement with the longitudinal sides of the slot,



and other of the supporting members being spaced from the one supporting member and from each other to receive and restrain the other end of the kicker therebetween.

3,810,633

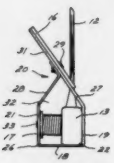
GOLF PUTTER SIGHTING DEVICE

Wray M. Scott, III, 1317 Park Ave., Apt. No. 3, Omaha, Nebr.

Filed Apr. 23, 1973, Ser. No. 353,628

Int. Cl. A63b *69/36, 53/00*

U.S. Cl. 273—183 D **7 Claims**



A golf putter sighting device having a housing which will slide over the head of a golf club and utilizing a biasing element for securing the housing on the club and a mirror secured to and projecting upwardly at an angle from the housing wherein a golfer can align the club face to a hole by merely sighting the hole via the mirror.

3,810,634

RECIPROCATING ROD SEALING MEANS FOR HOT GAS ENGINES

Sven Anders Samuel Hakansson, Karolingatan, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

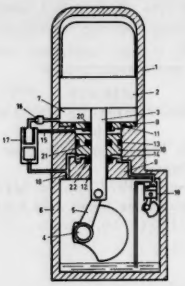
Filed Aug. 29, 1972, Ser. No. 284,469

Claims priority, application Great Britain, Sept. 3, 1971, 41151/71

Int. Cl. F16j *15/56*

U.S. Cl. 277—3 **7 Claims**

In a hot gas engine of the Stirling type, a reciprocating piston rod is sealed by means of two stationary sealing glands spaced apart and a movable sealing gland in the space between the two stationary glands. A pressure chamber is provided on each side of the movable sealing gland with a pressure respectively in each pressure chamber on opposite sides



of the fixed sealing glands, corresponding in magnitude to an operating pressure in one of the engine chambers.

3,810,635

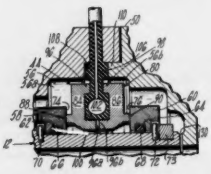
MECHANICAL SEAL

Harvey E. Richter, Farmington, Conn., assignor to The Tec Group, Inc., Bloomfield, Conn.

Filed Mar. 20, 1972, Ser. No. 236,433

Int. Cl. F16j *15/46*

U.S. Cl. 277—34 **10 Claims**



A mechanical rotary seal for sealing fluid flow between a generally cylindrical rotor and a generally cylindrical stator, the seal including seal ring means concentrically mounted for limited axial movement on the stator and seal mating ring means fixed on the rotor and jointly defining with the seal ring means an enclosed annular compartment located radially inwardly of the seal interfaces between the seal ring means and the seal mating ring means, and a fluid energized sealing member fixed to the stator and serving to bias the seal ring means into engagement with the seal mating ring means.

3,810,636

BEARING SEALING STRUCTURE

Paul T. Gorski, Mishawaka, Ind., assignor to Reliance Electric Company, Mishawaka, Ind.

Filed Feb. 14, 1972, Ser. No. 226,126

Int. Cl. F16j *15/34*

U.S. Cl. 277—94 **11 Claims**

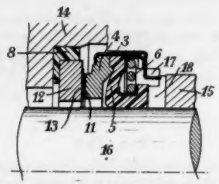
A sealing structure for a bearing having an outer race with an inwardly extending annular rib and an inner race with an

outwardly extending annular rib in which said sealing structure consists of an annular plastic member having an inner and outer pair of spaced radially extending flanges for embracing the respective annular ribs on the inner and outer races, forming sealing surfaces between said respective flanges and the sides of the respective ribs. The material from which the sealing structure is made is preferably plastic, such as nylon, and an annular recess may be provided in the center of the outside surface of the structure to improve the flexibility thereof. A lubricant passage connects the inner surface of the bearing with space between one pair of flanges.

3,810,637
SHAFT PACKING

Jacques Bonvin, Colombes, France, assignor to Societe Internationale De Mecanique Industrielle, S.A., Luxemburg, Luxembourg

Filed Jan. 14, 1972, Ser. No. 217,800
Int. Cl. F16j *15/34*
U.S. Cl. 277—96 **3 Claims**

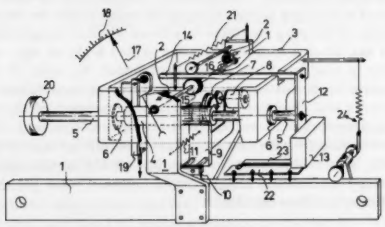


Shaft packing wherein the sealing ring and/or the counterring are coated with a thin layer of refractory or non-refractory material deposited thereon by using a plasma blowpipe.

3,810,638
WEIGHING APPARATUS

Werner Haack, Chur, Germany, assignor to Pfister Waagen GmbH, Augsburg, Germany

Filed Jan. 5, 1973, Ser. No. 321,542
Claims priority, application Germany, Jan. 7, 1972, 2200533
Int. Cl. G01g *7/00, 11/14, 23/10*
U.S. Cl. 177—213 **7 Claims**

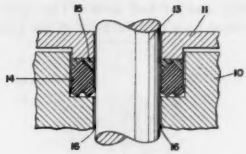


The poise of weighing apparatus is displaced by driving means if the weighing beam is not in the equilibrium position. A very small working force is sufficient to displace the poise because, in an embodiment in which the poise is guided so as to slide along a shaft, permanent relative rotation is maintained between poise and shaft, even in the equilibrium position of the poise. Either the shaft or the poise is constantly rotated. In an alternative embodiment, the poise together with at least one shaft forms one unit which is slidably and rotatably supported in bearing bushes, either the unit or the bearing bushes once again constantly rotated even when the driving means no longer produce any displacement of the poise.

3,810,639
FRANGIBLE BACKUP RING FOR SEALING RINGS

John B. Scannell, Long Beach, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Aug. 31, 1972, Ser. No. 285,182
Int. Cl. F16j *15/24*
U.S. Cl. 277—188 **3 Claims**

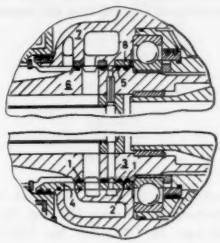


An anti-extrusion backup ring for use on the downstream side of a sealing ring which is manufactured and installed as one piece and will fracture at a fluid pressure magnitude less than that which will cause extrusion of the sealing ring whereby two or more anti-extrusion rings are formed which function independently of each other to prevent extrusion of the sealing ring at two or more different locations, such as at the ID and OD of the sealing ring.

3,810,640
SEALING RING ARRANGEMENT

Karl Gustav Ahlen, Stockholm, Sweden, assignor to S.R.M. Hydromekanik Aktiebolag, Ualingby, Sweden

Filed Mar. 1, 1972, Ser. No. 230,596
Claims priority, application Great Britain, Mar. 5, 1971, 6154/71
Int. Cl. F16j *15/28*
U.S. Cl. 277—235 A **21 Claims**



A sealing arrangement for forming a seal between inner and outer relatively rotating parts. A sealing ring is mounted in a groove in the inner part and it contacts a cylindrical surface on the outer part. The contacting surfaces of the sealing ring with the outer part and the groove constitute sealing surfaces and at least one of these sealing surfaces is porous and made of material having a low coefficient of friction. The porous and low coefficient of friction material may comprise a layer on either the outer part or the sealing ring or the sealing ring may be made of such material. An example of such a material is molybdenum.

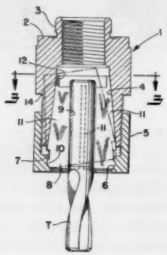
3,810,641
COLLET CHUCK FOR ROUTER HEAD AND THE LIKE

Milton L. Benjamin, Chagrin Falls, Ohio, assignor to Erickson Tool Company, Solon, Ohio

Filed Sept. 1, 1972, Ser. No. 285,744
Int. Cl. B23b *31/20*
U.S. Cl. 279—51 **5 Claims**

A three piece collet chuck of the push-pull type wherein a nosepiece having threaded engagement with the chuck body

has radially interfitting engagement with the axially outer end portion of a tapered contractible collet to force the collet into, and to withdraw it from the correspondingly tapered bore in the chuck body respectively to grip and release the shank of a cutter therewithin, said collet being characterized in that it is axially slotted from its axially outer end to form at least three segments of relatively thick radial cross section which are integrally connected to a thin and flexible split ring portion at the axially inner end of the collet. The split ring portion aforesaid is formed by a counterbore in the axially inner end



of the collet, one of the slots extending throughout the entire length of the collet and the remaining slots extending from the axially outer end of the collet to at least the bottom of the counterbore.

In another form of contractible collet, there is one axial slot through its entire axial length and radial wall thickness, and at least two peripheral axial grooves extending throughout the length of the collet leaving radially thin segment-connecting portions to enable wrapping of the segments around the cutter shank when the collet is forced into the tapered bore of the chuck body.

3,810,642
DRILL CHUCKS

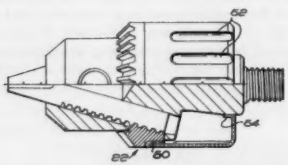
George Cecil Derbyshire, Sheffield, England, assignor to The Jacobs Manufacturing Company Limited, Sheffield, England

Filed Apr. 28, 1972, Ser. No. 248,543

Claims priority, application Great Britain, July 21, 1971, 34252/71

Int. Cl. B23b *31/04*

U.S. Cl. 279—62 **3 Claims**



A drill chuck having a body part and a cylindrical sleeve connected to the usual nut member engaging the jaws, the cylindrical sleeve extending rearwardly to engage a cylindrical portion of the body remote from the nut member.

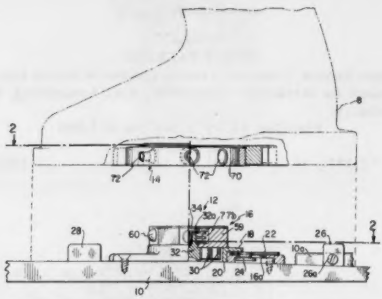
3,810,643
SKI BINDING

Barry Lewis Druss, Holliswood, N.Y., assignor to Chimera R. & D., Inc., Holliswood, N.Y.

Continuation-in-part of Ser. No. 23,876, March 30, 1970, Pat. No. 3,727,932. This application Nov. 1, 1972, Ser. No. 302,786

Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 R **20 Claims**



A ski binding comprising an interengaging mechanism between the ski boot and the ski, allowing the skier to transfer his weight to the ski. The essential elements of the binding consist of a plug member and an interengaging socket member, one of the members being associated with the ski boot and the other with the ski. In a preferred form, the plug member is removably secured to the ski and the socket member is associated with the boot; it may be integrally formed with the sole or removably inserted in a recess formed therein. The ski binding has a central rotational member journaled in the plug member for selectively loading and at least partly unloading detent elements by means of interposed parts, such as pawls and supports therefor. The detent elements are either balls or plunger-like elements, by which the two members are allowed to become detached from one another. The socket member has an opening sufficient to receive the plug member. The latter may be made with flat outer sides so as to allow additional clearance between the interengaging members. A plurality of recesses are spaced on the inner wall of the socket member to register with the detent elements of the plug member. Any force whether longitudinal of the ski, or as a torque about the skier's body or legs, will develop a reactive force through or about the area of the geometric center of the binding. If the force is sufficient in magnitude and duration an automatic separation of the interengaging members is effected in response to the force. The invention also provides an over-center action lever arrangement by which the loading force on the detent elements can be selectively applied and at least partly removed when the skier attaches or removes the ski.

3,810,644
SKI BINDING

Jean Joseph Alfred Beyl, 10 Boulevard Victor Hugo, 58 Nevers, France

Filed July 24, 1972, Ser. No. 274,498

Claims priority, application France, July 30, 1971, 71.27975

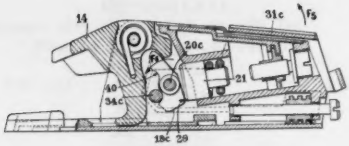
Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 T **10 Claims**

Quick-release heel hold-down device for ski binding, comprising a heel retaining jaw pivotally mounted on a fixed base member and responsive to the force of a spring constantly urging said jaw upwards to its release position. The resilient

return means comprise a spring-loaded piston adapted to hold said jaw in its lower or operative position, and a pivoting member engaging on the one hand said pivoting jaw and on the other hand said piston of said resilient return means.

Said pivoting member comprises a control edge in bearing engagement with the operative face of said spring-loaded piston of said resilient return means, said last-mentioned means acting through said control edge for constantly urging



said pivoting member in the direction of rotation corresponding to the closing of said jaw. Said pivoting member has two end stable positions corresponding the one to the jaw opening position and the other to the jaw closing position, and said jaw comprises a control lug co-acting with said pivoting member in order to produce a self-locking action against the pressure force developed by said resilient return means in the end position corresponding to the open jaw position.

3,810,645

SKI BINDING

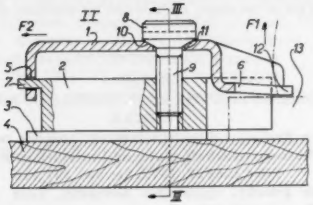
Marcel Vouthier, Cluses, France, assignor to Etablissements Carpano & Pons S.A., Cluses, France

Filed July 24, 1972, Ser. No. 274,796

Claims priority, application France, July 28, 1971, 71.27620

Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 T **8 Claims**



A ski binding comprises a pivoted lever having one end shaped to constitute a boot-sole retaining jaw and an opposite end pivotally connected to an outer end of the ski binding body, an intermediate screw permitting adjustment of the height of the jaw by engaging a tapped hole in said case and bearing with a frustoconical surface of its head against an inclined edge of an aperture in said lever. The lever is held against said head by spring means or by a cross pin or spring ring.

3,810,646

SKI BINDING CONSTRUCTION

Willy Suhner, Aarauerstrasse 38, 5200 Brugg, Switzerland

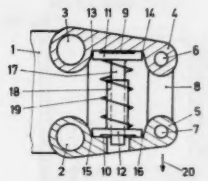
Filed Sept. 14, 1972, Ser. No. 289,127

Claims priority, application Switzerland, Sept. 15, 1971, 13532/71

Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 T **18 Claims**

In a ski binding having a four-bar kinematic chain which includes two opposite first elements one of which is to be secured to a ski and the other of which carries a boot-engaging portion and is displaceable in a predetermined plane from and to a rest position, and two opposite second elements linked with the first elements, the invention provides a pretensioned energy storing spring which acts between the second elements of the chain, and at least one abutment interposed between the spring and one of the second elements. The abutment en-



gages the associated second element in point or line contact at a surface thereof which extends substantially normal to the plane of movement of the displaceable element, and the abutment is spaced from the locus at which the force of the spring acts upon the other second element by a distance which decreases with increasing displacement of the movable first element from its rest position.

3,810,647

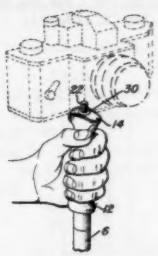
SKI POLE WITH CAMERA MOUNTING MEANS

Earl J. Martchenke, P.O. Box 8831, Albuquerque, N. Mex.

Filed July 20, 1972, Ser. No. 273,631

Int. Cl. A63c *11/22*

U.S. Cl. 280—11.37 E **6 Claims**



A ski pole of a conventional type is utilized in a manner that special means is mounted accessibly and operatively atop the handgrip for detachably mounting, transporting and supporting photographic camera equipment whereby to in this manner permit the ski pole to be employed in the usual manner while skiing and in addition to serve as a stabilizing, aiming support for the photographic camera equipment when the skier feels called upon to use the same.

3,810,648

COLLAPSABLE STORAGE CONTAINER

Nils Ragnar Hallenius, Goteborg, Sweden, assignor to Innovia Logistikmaskiner AB, Goteborg, Sweden

Filed June 15, 1972, Ser. No. 263,207

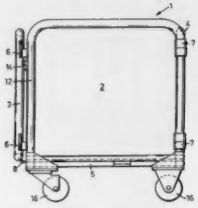
Claims priority, application Sweden, June 18, 1971, 7967/71

Int. Cl. B62b *1/12, 1/00*

U.S. Cl. 280—33.99 R **12 Claims**

The present invention relates to a storage container intended for loose stacking and transport of piece goods, e.g. cartons of milk, which has at least three wall members of which one is a front wall and the other two are side walls hin-

gedly connected with at least one of the wall members and collapsable against the same. Said storage container is also convertible from a normal position in which it has essentially the form of a parallelepiped, to a stowing position requiring less space. The invention is mainly characterized in that the side walls are swingable out from their normal positions, in which they form essentially a 90° angle with the front wall, to outer



positions appropriate for stowing the container, in which positions said angle is obtuse and in which the internal distance between the rear edges of the side walls is greater than the breadth of the front part of the container. The swinging outward of the side walls is limited at the outer positions by a blocking member, mounted on the side walls or parts connected to the side walls, stopping against the front wall or against parts connected thereto or vice versa.

3,810,649

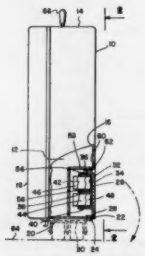
ARTICLE TRANSPORT MEANS

John J. Fahey, Jr., 351 E. Thomas Rd., Apt. D203, Phoenix, Ariz.

Filed Feb. 28, 1973, Ser. No. 336,535

Int. Cl. A45c *5/14*

U.S. Cl. 280—37 **7 Claims**



An article transport means adapted to carry the weight of various articles such as heavy luggage cases or appliances while such articles are manually moved along a surface such as a floor or the like from one place to another. The transport means having a housing provided with a bottom and a side at the juncture of which a hinge hingedly supports a roller carriage plate which is adapted to move from a normally vertical position at the side of the housing to a horizontal position beneath the bottom of the housing so that rollers rotatably mounted on the rotor carriage plate may be carried inside the housing in a compartment therein and may alternately be pivoted about the hinge to be disposed beneath the housing so that the peripheries of the rollers may support the housing on a horizontal or other surface such as a floor; a flexible endless belt means is positioned over the rollers so that they may be operated in unison and operate quietly as well as to provide extended traction for the rollers to support the housing and to assist in static balancing thereof when manually transported by handle or other means preferably on the top of the housing.

3,810,650

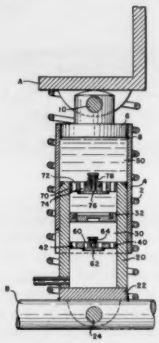
ANTI-DIVE BANKING SUSPENSION APPARATUS FOR VEHICLES

Norman H. Hudson, 805 Franklin Rd., Clinton, Miss.

Filed May 3, 1972, Ser. No. 249,777

Int. Cl. B60g *11/58*

U.S. Cl. 280—124 F **4 Claims**



Apparatus for maintaining a vehicle body in substantially level condition and absorbing shock has pistons mounted respectively on the body and the axle and relatively movable with respect to each other. A cylinder is connected to the body-attached piston and provides a cylinder for the axle-attached piston, but does not engage the axle. The axle-connected piston has a central bore within which there is a smaller floating piston. The two axle-connected pistons have a combined area equal to that of the body-connected piston. The space between the body-connected piston and the two axle-connected pistons is filled with oil, and the inner of the axle-connected pistons is suspended within the outer piston between oil on its upper surface and air pressure on its lower surface.

3,810,651

SUSPENSION FOR THE REAR WHEELS OF A MOTOR VEHICLE

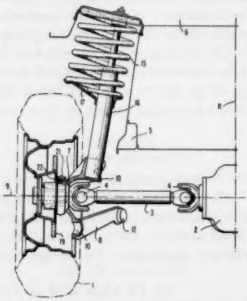
Christian Puchas, Fellbach, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed June 28, 1972, Ser. No. 267,116

Claims priority, application Germany, June 28, 1971, 2132087

Int. Cl. B60g *11/56*

U.S. Cl. 280—124 A **17 Claims**



A suspension for the rear wheels of a vehicle, especially a passenger motor vehicle, in which each wheel is supported in a

wheel carrier which, in turn, is supported in the horizontal direction by means of a longitudinal strut extending at an inclination to the vehicle longitudinal axis and by means of a transversely disposed tie-rod and in the vertical direction by means of a full load-bearing spring leg consisting of a spring and a shock absorber which is secured at the wheel carrier.

3,810,652

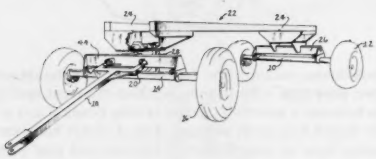
RUNNING GEAR

Jack M. Quirk, 1618 Gainsborough, Amarillo, Tex.

Filed Oct. 25, 1972, Ser. No. 300,439

Int. Cl. B62d *1/02*

U.S. Cl. 280—125 **11 Claims**



On a swinging axle wagon or trailer, the front axle is articulated by ball socket joints rather than a flat fifth wheel. A bracket on the reach structure has a top and bottom socket connected by a torsion bar to stabilize the front axle. The bottom ball is vertically aligned with the top ball on the front axle.

ERRATUM

For Class 280—150 see:
Patent No. 3,810,523

3,810,653

MOTOR VEHICLES EQUIPPED WITH GAS CUSHION

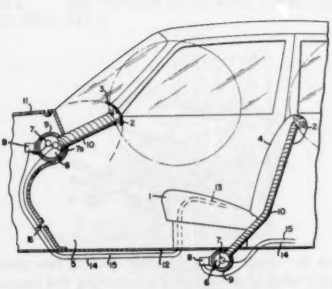
Gerhard Schiesterl, Stuttgart, and Helmut Wulf, Nellingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed May 21, 1971, Ser. No. 145,639

Claims priority, application Germany, May 21, 1970, 2024813

Int. Cl. B60r *21/10*

U.S. Cl. 280—150 AB **24 Claims**



A motor vehicle equipped with gas cushions arranged on the inside of the vehicle which are adapted to be inflated for the protection of the vehicle passengers in case of a collision by means of a gas stored in tanks and released by the ignition of blast cartridges initiated by deceleration measuring devices whereby the containers and blast cartridges are arranged outside of the vehicle passenger space itself, for example, in the engine space, and/or in the luggage space.

3,810,654

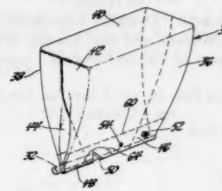
OCCUPANT RESTRAINT CUSHION ASSEMBLY AND METHOD OF MANUFACTURE

John DeBano, Jr., Roseville, and James L. Noll, Livonia, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 5, 1972, Ser. No. 250,674

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **5 Claims**



An occupant restraint cushion of tapered cross section is manufactured from a single sheet of suitable material which is folded and stitched in a series of steps to complete the cushion. There is no cutting of the material to provide the desired shape to the cushion. The cushion includes a pair of body walls, an end wall integrally connecting the body walls and providing the basal end of the cushion, and side walls integral with the body walls and stitched to the end wall. The side walls have a center stitch line. The side walls adjacent their free ends are folded upon themselves and stitched to the body walls adjacent their free ends to provide the apical end of the cushion. One of the body walls is provided with an opening intermediate the side walls for receiving an inserted portion of a diffuser. The inserted portion of the diffuser is secured to the one body wall.

3,810,655

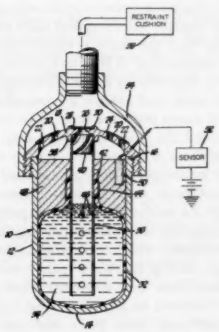
GAS GENERATOR WITH LIQUID PHASE COOLING

Otaker P. Prachar, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 21, 1972, Ser. No. 282,069

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **2 Claims**



A cylindrical housing has one closed end wall and an opposite end wall provided with an atomizing nozzle and a pair of concentric rows of nozzles encircling the atomizing nozzle. A flexible container within the housing contains a mixture of water and ethyl alcohol. A conduit connects the atomizing nozzle and the container. A charge of propellant material is located within the housing. When the charge is ignited, the hot

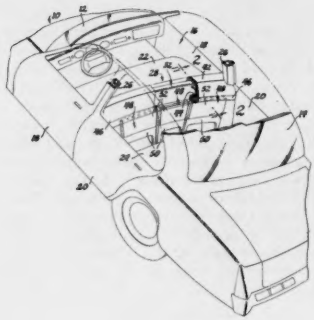
gases compress the container to force the liquid therein through the conduit and the atomizing nozzle to atomize the liquid. The droplets mix with the hot gases flowing through the concentric rows of nozzles to cool the gases as the gases flow to an inflatable occupant restraint cushion.

3,810,656

VEHICLE BODY ENERGY ABSORBING PANEL

Robert M. Fox, Warren, and Karl Truran, Southfield, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 26, 1973, Ser. No. 335,445
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 B **3 Claims**



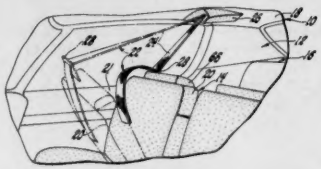
An elongated energy absorbing panel extends between the side pillars of a vehicle body in proximity to the upper seat back edge of the vehicle front seat so as to function as a headrest for front seat occupants and a frontal restraint for rear seat occupants. Each panel end supports a channel member extending longitudinally of the vehicle and opening to an opposed channel member on the adjacent side pillar, and slide members slidably interconnect each pair of these channel members so that the panel is supported for both forward and rearward movement. A first pair of die and draw rod arrangements are respectively mounted between the side pillars and the panel ends, and absorb a controlled level of energy during forward panel movement so as to cushion the frontal restraint provided for rear seat occupants. Tongue and slot connections of these arrangements slidably release them from their mounted relationship during rearward panel movement so they do not limit such rearward movement. A similar second pair of die and draw rod arrangements are likewise mounted between the side pillars and the panel ends, but are oriented in the opposite direction to the first pair so that they absorb energy during rearward panel movement and are slidably released from their mounted relationship during forward panel movement so as not to limit such forward movement. Two outboard knee pads and one center one are mounted on the vehicle floor below the panel and are movable forwardly during an impact upon engagement thereof by the knees of a forwardly moving rear seat occupant. Deformable slide strap arrangements extend between the outboard knee pads and the side pillars respectively adjacent to them so as to be deformed by such forward knee pad movement and to thereby absorb energy. The center knee pad is also provided with a suitable energy absorbing device to cushion its forward movement.

3,810,657

SHOULDER BELT POSITIONING ARRANGEMENT

David D. Campbell, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 9, 1973, Ser. No. 339,512
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 SB **3 Claims**



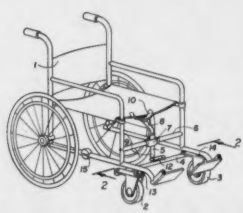
A positioning arrangement for the front seat shoulder belt of a two door type vehicle body in which the front seat back moves between a generally upright seating position and a forwardly tipped easy-enter position. The shoulder belt extends forwardly from an attachment to an outboard roof portion rearward of the front seat and has an intermediate portion slidably received by an aperture in the upper end of an elongated belt guide on an outboard upper portion of the front seat back. The belt guide is slidably mounted for movement between retracted and extended positions relative to this seat back and is reciprocated by a linkage between these positions in response to the seat back movement. When the seat back is moved to the forwardly tipped easy-enter position, the linkage moves the belt guide to the extended position so as to position the shoulder belt upwardly and to thus allow an occupant access to the vehicle rear seat without belt interference. Upon return movement of the seat back to the upright seating position, the linkage retracts the belt guide and moves the shoulder belt to a location where it can extend forwardly from the guide diagonally inboard across an occupant's chest in a restraining manner.

3,810,658

WHEELCHAIR STEERING APPARATUS

Howard A. Weimer, Sr., Hawthorne, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Nov. 7, 1972, Ser. No. 304,372
Int. Cl. B62b *11/00*
U.S. Cl. 280—269 **3 Claims**



Apparatus for steering a wheelchair having two pivotally mounted front wheels comprises a connecting rod removably coupled to the front wheels to move the front wheels in unison. A pivot rod is mounted in substantially upright position in a cross rod for movement side to side relative to its axis. A leg rest is affixed to the upper end of the pivot rod in a manner whereby the leg rest and the pivot rod move together relative to the axis of the pivot rod. A radius rod couples the lower end of the pivot rod to the connecting rod in a manner whereby movement of the pivot rod to either side relative to its axis moves the connecting rod in a corresponding direction in a substantially horizontal plane to rotate the front wheels in

unison about their pivots so that an occupant of the wheelchair steers the wheelchair with a leg by resting the leg on the leg rest and moving the leg in the desired direction.

3,810,659

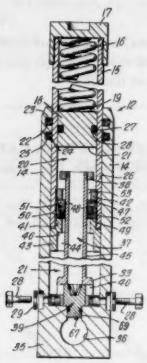
SUSPENSION DAMPING DEVICE

Jean Pierre Marcil, 22 MacDonald St., Maple Grove, Quebec, Canada

Filed Feb. 2, 1973, Ser. No. 328,902

Int. Cl. B60g *11/00*

U.S. Cl. 280—276 **10 Claims**



A suspension damping device comprising an elongated tubular housing having a closed lower end for connection to an axle of a wheel and an open upper end having an elongated tube in sealed sliding engagement retained therein. A coil spring is located in the upper part of the tube and is retained between the upper end of the tube and a floating piston positioned in sealed sliding engagement in the tube. An upper and a lower oil chamber is formed in the tube and tubular housing below the piston. First and second passage means are provided between the first and second oil chambers with the second passage means having valve means which is responsive to lateral displacement of the wheel.

3,810,660

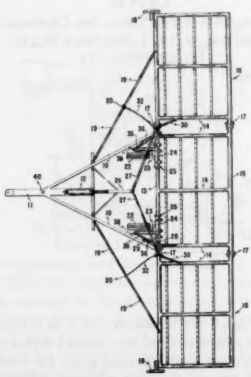
FOLDING IMPLEMENT CART

Harold B. Peterson, Larchwood, Iowa

Filed July 21, 1972, Ser. No. 274,112

Int. Cl. B62d *53/00;* **A01b** *19/04*

U.S. Cl. 280—411 A **11 Claims**



A folding cart for an agricultural drag. The cart includes a center section and lateral wings all of which are raised and the wings of which swing together under the influence of a single actuating device. Novel means for raising the cart and pulling the wings into place are provided.

3,810,661

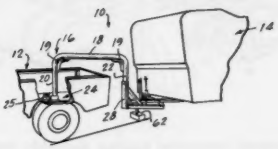
TRAILER HITCH

Larry D. Lowrance, Rt. 1, Robinson, Ill.

Filed Oct. 5, 1972, Ser. No. 295,129

Int. Cl. B62d *53/04*

U.S. Cl. 280—415 B **11 Claims**



In a trailer hitch a U-shaped tow beam has a ball and socket connector at one end thereof for connection to the bed of a pickup truck at one end of the tow beam, and a tongue receiving assembly secured to the other end of the tow beam. The tongue receiving assembly is bifurcated and provided with U bolts for releasably securing the tongue of a trailer thereto. The tow beam is provided with means for adjusting the relative elevation of its two ends, and with means for permitting the tow beam to be swivelled about a vertical axis, for storage adjacent the front portion of the trailer.

3,810,662

RETRACTABLE WHEELS FOR SNOWMOBILES

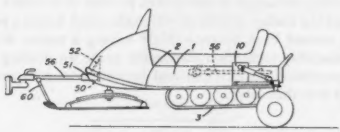
Ephrem Commanda, P.O. Box 1244, Esponola, Ontario, Canada

Continuation-in-part of Ser. No. 194,126, Nov. 1, 1971, abandoned. This application Feb. 2, 1973, Ser. No. 329,165

Claims priority, application Canada, Nov. 9, 1970, 97699

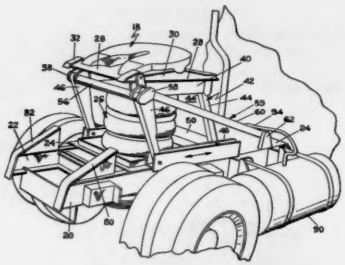
Int. Cl. B60g *3/14;* **B60d** *1/14*

U.S. Cl. 280—415 R **11 Claims**



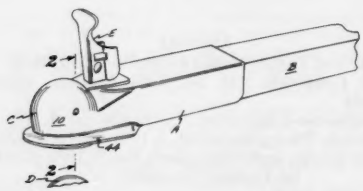
A kit of parts for attachment to a snowmobile, to allow the snowmobile to be transported by road without the use of a trailer. The kit of parts includes retractable or removable road wheels carried by suspension means including springs and shock absorbers, and a tow bar by which the snowmobile may be hitched to a car for towing along a road on the road wheels. The suspension means includes a fixed part including the spring and shock absorber means, and a retractable part.

3,810,663
VEHICULAR BAG HOIST
Howard P. Berends, Fruitport, Mich., assignor to Holland Hitch Company, Holland, Mich.
Division of Ser. No. 103,689, Jan. 4, 1971. This application Oct. 25, 1972, Ser. No. 300,642
Int. Cl. B62d 53/08
U.S. Cl. 280—425 4 Claims



An elevatable vehicular hauling assembly employing expandable hoisting bellows, a pair of sliding parallelogram linkages, and vertical alignment retention and position control means interlinked therewith.

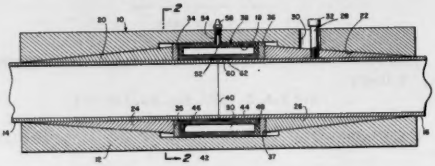
3,810,664
TRAILER VEHICLE ANTI-THEFT PLUG ASSEMBLY
Charles P. Nunnink, Jr., Hawthorne, and Marvin D. Bell, Chatsworth, both of Calif., assignors to Recreation Creations, Inc., Chatsworth, Calif.
Filed Sept. 18, 1972, Ser. No. 290,239
Int. Cl. B60d 1/12
U.S. Cl. 280—507 4 Claims



An anti-theft, lock-operated plug assembly capable of being removably mounted in the socket portion of a trailer hitch to prevent the trailer vehicle of which the hitch forms a part from being moved by a power vehicle having a trailer hitch ball. The assembly includes a disposable guide for drilling holes at predetermined positions in said socket portion to permit use of said anti-theft plug.

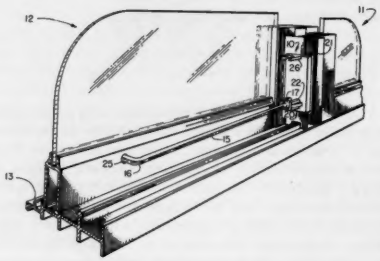
3,810,665
PIPE COUPLING
Fletcher Rodgers, Alva, Okla.
Continuation-in-part of Ser. No. 199,585, Nov. 17, 1971, abandoned. This application May 14, 1973, Ser. No. 359,742
Int. Cl. F16l 17/00
U.S. Cl. 285—97 1 Claim

A coupling for tubular members wherein a sleeve member is provided for quickly receiving the ends of adjacent tubular members, such as pipe sections, therein. Wedge members are provided within the sleeve for securely retaining the pipe ends therein, and sealing means is provided for the joint between the adjacent pipe ends for not only precluding leakage of fluid



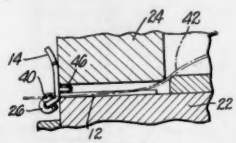
from the pipe sections, but also precluding leakage of fluid into the pipeline in the event the pipe joint is disposee beneath liquid, such as water, or the like.

3,810,666
PANEL SECURING LATCH
Victor E. Hatcher, 3825 Calle Del Monte, Albuquerque, N. Mex.
Filed Apr. 10, 1972, Ser. No. 242,680
Int. Cl. E05c 17/04
U.S. Cl. 292—262 6 Claims



A latch assembly for securing a sliding panel with respect to an adjacent panel. The latch assembly includes a rod which is hingeably or rotatably carried at one end within a socket affixed to one of the panels. The rod is configured at its other end to be received into a locking structure upon or in the other panel to thereby prevent movement of the sliding panel.

3,810,667
LATCH
Thomas J. Dugan, 99 Avenida Serra, San Clemente, Calif.
Filed Aug. 9, 1971, Ser. No. 170,232
Int. Cl. E05c 3/14
U.S. Cl. 292—346 7 Claims



A pick-proof latch for a closure, such as a door, having a keeper plate for attachment to the closure frame or jamb and a striker plate hinged to the keeper plate for movement to a locked closure-engaging position wherein the striker plate is located in the path of opening movement of the closure to lock the latter in closed position. The latch is released to open

the closure by first raising the striker plate and then swinging the latter plate to a closure-releasing position. The keeper plate projects beyond the lower end of the striker plate in the locked closure-engaging position of the latter plate and may have an abutment, such as a screw, to extend between the keeper plate and closure to prevent raising of the striker plate to release the latch by insertion of a card between the closure and its jamb or frame.

3,810,668

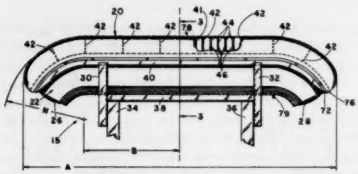
ENERGY ABSORBING BUMPER SYSTEM

Murray Kornhauser, Wynnewood, Pa., assignor to Safety Consultants, Berwyn, Pa.

Filed Mar. 19, 1971, Ser. No. 126,155

Int. Cl. B60r *19/10*

U.S. Cl. 293—71 P **12 Claims**



An energy absorbing bumper system for protection of moving vehicles. The system comprising a storage tank and an impact bag, each containing compressed air, and means for controlling the flow of air between the bag and the tank. The bag is contoured for a generally flat impact surface to provide efficient operation and compact size, and to yield an aesthetically pleasing shape, and is held in shape by dividing the bag into a large number of compartments lying adjacent to each other along the direction of the surface to be protected, and by introducing compressed air into each compartment. Each one of the compartments of the bag is connected to the tank by means of an orifice.

3,810,669

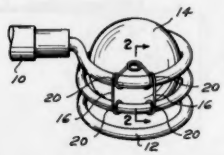
GOLF BALL PICKUP DEVICE

Claude L. Reid, St. Catharines, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,316

Int. Cl. A47f *13/06*

U.S. Cl. 294—19 A **2 Claims**



A device comprising: an elongated handle; a coil spring having an inner diameter large enough to receive a golf ball, said spring being secured to the handle in such manner that the axis of the spring extends at right angles to the direction of elongation of the handle; and clip means secured to the periphery of the spring and having an extnension which is flexible and extension inwardly towards the axis of the spring to engage and hold the ball in the spring once the ball is disposed in the spring.

3,810,670

SANITARY DEVICE

Dino P. Turi, Middle Village, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,552

Int. Cl. A47f *13/06*

U.S. Cl. 294—19 R **1 Claim**

A sanitary device comprising an elongated hollow tube open at one end; a wire frame secured to the other end of the tube; an elongated rod, one end of the rod slidably engaging the open end of the tube; and a disposable scoop secured to the other end of the rod.

3,810,671

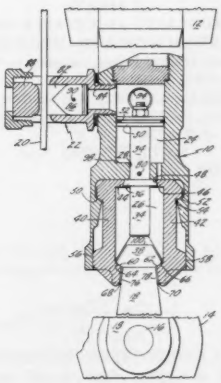
JETTISON DEVICE FOR HELICOPTER LOAD CARRYING SYSTEM

Philip Auriol Edgar Jeffery, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 30, 1972, Ser. No. 284,827

Int. Cl. B64d *1/12*

U.S. Cl. 294—83 AE **6 Claims**



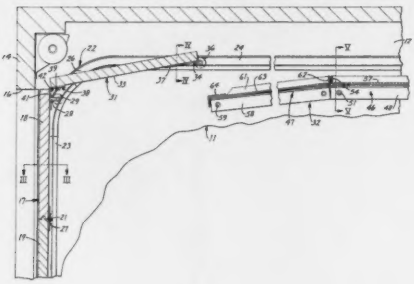
A jettison device for the load carrying system of a helicopter which comprises an explosively operated mechanism for both jettisoning the load held by a hook at the end of a pendant and simultaneously cutting the hook retrieval cable.

3,810,672

CARGO DEFLECTOR PANEL

Flay D. Crosswell, and Gerald W. Galbreath, both of Marion, Ohio, assignors to Overhead Doar Corporation, Marion, Ohio

Filed Sept. 27, 1972, Ser. No. 292,626
Int. Cl. B62d 25/06
U.S. Cl. 296—106 17 Claims



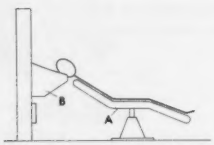
A conventional truck trailer is provided with a sectional door which is rollingly supported in substantially L-shaped tracks mounted on the sidewall of the trailer. The door is movable from a closed vertical position wherein it is disposed in vertical track portions, to an open horizontal position wherein it is supported on horizontal track portions disposed adjacent the top wall of the trailer. The present invention provides a false ceiling extending between the side walls of the trailer and disposed directly below the horizontal track portions, which false ceiling extends to a point adjacent to but spaced from the door when same is in its closed position. A substantially rectangular deflector panel, in the preferred embodiment, has one edge thereof pivotally connected to the top panel of the door, with the other edge thereof being rollingly supported on the guide tracks. The deflector panel is disposed at an angle relative to the door when same is in its closed position, whereby said other edge is positioned adjacent the end of said false ceiling. The deflector panel and false ceiling prevent the cargo from entering into the space between the tracks when the door is closed.

3,810,673

HORIZONTALLY ADJUSTABLE CHAIR IN COMBINATION WITH A SHAMPOO BOWL UNIT

Nagayoshi Shoji, Osaka, Japan, assignor to Takara Belmont Kabushiki Kaisha, Osaka, Japan

Filed Mar. 31, 1972, Ser. No. 240,088
Claims priority, application Japan, Apr. 3, 1971, 46-20437; Apr. 14, 1971, 46-23033
Int. Cl. A47c 7/62, 7/50
U.S. Cl. 297—217 10 Claims



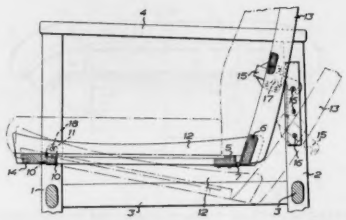
A horizontally adjustable chair in combination with a shampoo bowl unit to be installed in barbershops, beauty parlors, etc. comprising a shampoo bowl unit which is either fixed in place or mounted for concealment in a cabinet and a chair having a seat capable of horizontal and longitudinal travel by means of a glide mechanism. The seat can be locked at a desired position by operation of a lock lever and relating locking members. In such a chair and a shampoo bowl combination, the relative distance between the user's head and the shampoo bowl can be easily adjusted. The chair is also rotatable, vertically adjustable and tiltable.

3,810,674

CHAIR AGGREGATES

Sven Hugo Svensson, Vinslov, Sweden, assignor to Skandi-Form AB, Vinslov, Sweden

Filed July 20, 1972, Ser. No. 273,499
Int. Cl. A47c 1/02, 1/06, 1/12
U.S. Cl. 297—326 3 Claims



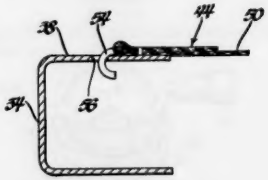
A chair aggregate comprises seat and back rest members adjustably mounted in a chair frame having front and rear leg pairs rested on a supporting frame which is provided with wheels for supporting the chair aggregate on a floor.

3,810,675

VEHICLE SEAT CUSHION WITH RESILIENT BACK BAR

Rudolph A. Ferrara, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 12, 1972, Ser. No. 296,886
Int. Cl. A47c 7/20; B60n 1/06
U.S. Cl. 297—460 3 Claims



A seat cushion frame assembly includes a stamped seat pan having rearwardly extending upwardly curving side members. A resilient diaphragm is die-cut to provide a back bar and seat suspension members which are connected by uncut portions. Wire clips sewn to the diaphragm attach the ends of the back bar and seat suspension members in varying degrees of tension between the side members. The resilient back bar is positioned forwardly of the conventional rigid back bar to increase foot room for the rear seat occupant and by virtue of flexure assures the comfort of the front seat occupant.

3,810,676

ROAD LEVELLING MACHINE

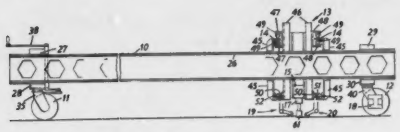
Ronald Albert William Clarke, Redhill, England, assignor to Klarcrete Limited, Surrey, England

Filed Sept. 20, 1972, Ser. No. 290,468

Claims priority, application Great Britain, Sept. 22, 1971, 44181/71

Int. Cl. E01c 23/09

U.S. Cl. 299—1 9 Claims



A machine for levelling a concrete road has a motor driven chassis fitted with a pneumatic hammer unit arranged to cut away any part of the road surface passing below the hammer unit which exceeds a predetermined level relative to the chassis. Operation of the hammer unit is controlled by a device which measures the height of the road surface immediately ahead of the hammer unit during travel of the machine along a road and energises the hammer unit whenever this height exceeds a predetermined value. A second device measures the height of the cut road surface relative to the chassis and increases or decreases the speed of travel whenever the height of the cut road surface is below or above fixed limits. The distance between the hammer unit and front wheels is approximately three times the distance between the hammer unit and the rear wheels which run on the cut road surface. The hammer unit is of the kind having a cutting head connected to a piston which reciprocates in a cylinder automatically on supply of compressed air, but the valve means is arranged so that air is directed to the top of the cylinder in the event of the piston dropping to its lowermost position, thereby holding the piston in this position. The hammer unit thus stops whenever the cutting head passes over a depression in the road.

3,810,677

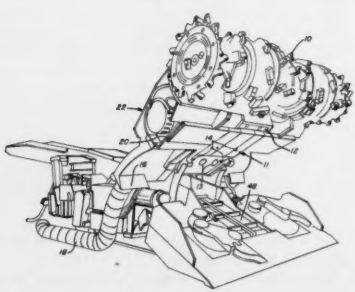
MINING MACHINE DUST COLLECTOR

Joseph S. David, 320 Pinavak Dr., Franklin, Pa.

Filed Sept. 18, 1972, Ser. No. 289,833

Int. Cl. E21c 35/22

U.S. Cl. 299—64 10 Claims



A mining machine having a boom enclosed dust collector assembly for use in a coal mining operation wherein the dusty air from a mining operation is gathered directly from said operation, collected in the mining machine boom, selectively wetted and separated by centrifugal processing into a coal slurry for disposal and clean air for exhaust.

3,810,678

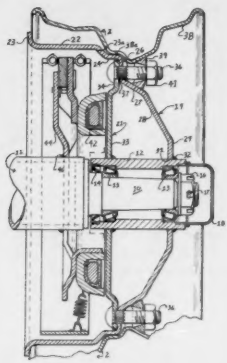
FABRICATED BRAKE DRUM AND HUB ASSEMBLY

Donald T. Studdard, Winfield, and Thomas E. Morrison, Guin, both of Ala., assignors to Continental Conveyor and Equipment Company

Filed Aug. 30, 1972, Ser. No. 285,021

Int. Cl. B60b 23/10, 19/00

U.S. Cl. 301—6 S 1 Claim



A brake drum and hub assembly in which the brake drum and a central portion thereof which is joined to the outer periphery of the hub is made of a single sheet of stamped steel. A second, inwardly disposed steel stamping is joined to the hub inwardly of the central portion of the brake drum and is connected to the brake drum section at a point outwardly of the hub by means of lug bolts which lug bolts, in association with lugs, are adapted removably to mount a rim for a pneumatic tire.

3,810,679

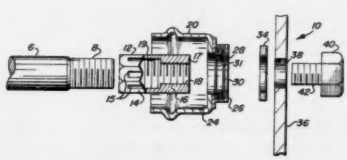
NONROTATABLE HUB AND SEAL MEANS FOR AUTOMOTIVE VEHICLE

Robert C. Myers, P. O. Box 1981, Scottsdale, Ariz.

Filed Aug. 14, 1972, Ser. No. 280,274

Int. Cl. B60b 27/06

U.S. Cl. 301—108 SC 6 Claims



Apparatus is disclosed which includes a nonrotatable hub and means for sealing the nonrotable hub to exclude dust and the like.

3,810,680

PRESSURE SUPPORTED MODULATOR

Donald E. Schenk, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

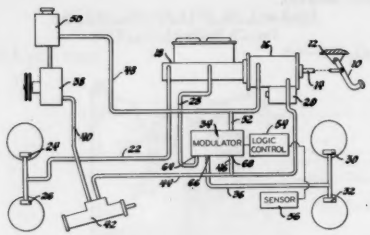
Filed Nov. 29, 1972, Ser. No. 310,352

Int. Cl. B60t 8/06

U.S. Cl. 303—6 C 2 Claims

A hydraulic brake pressure modulator having hydraulic pressure support for a displacement piston. The pressure sup-

port section of the modulator contains a solenoid valve which delivers a pilot pressure to a slave valve piston when brake



pressure modulation is required. A piston is moved to open a release valve to reduce the modulator support pressure acting on the modulator displacement piston.

3,810,681

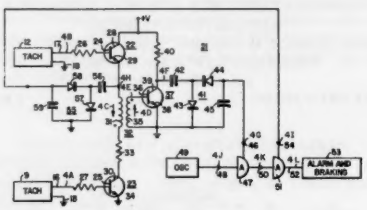
METHOD OF AND APPARATUS FOR PRODUCING A VEHICLE MOVEMENT BRAKING SIGNAL IN RESPONSE TO SENSING THE DIRECTION OF TRAVEL OF A VEHICLE

Thomas C. Matty, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 220,829, Jan. 26, 1972. This application May 1, 1973, Ser. No. 356,236

Int. Cl. B60t *7/12*

U.S. Cl. 303—20 **7 Claims**



A pair of tachometers are operatively engaged with the drive mechanism of a vehicle. The tachometers are aligned relative to one another such that if the vehicle is traveling in a forward direction the signal provided at the output of the first tachometer leads the signal provided at the output of the second tachometer by a first predetermined phase angle, and if the vehicle is traveling in the reverse direction, the signal output of the second tachometer leads the signal output of the first tachometer by a second predetermined phase angle. Apparatus is included for sensing the relative phase of the respective signals provided at the outputs of the tachometers. In response to sensing that the output signal of the first tachometer leads the output signal of the second tachometer by the first predetermined phase angle, a vehicle movement control signal is provided which informs the vehicle drive mechanism that it is safe for the vehicle to continue its movement. In the event the apparatus senses that the output signal of the second tachometer leads the output signal of the first tachometer by the second predetermined phase angle, the provision of the vehicle movement control signal is inhibited, and the vehicle is braked.

3,810,682

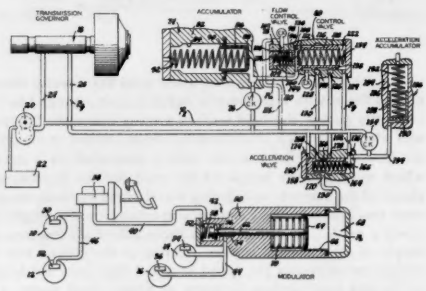
ANTI-LOCK BRAKE SYSTEM

Theodore E. Demers, Ann Arbor, and Erkki A. Koivunen, Livonia, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 12, 1973, Ser. No. 339,619

Int. Cl. B60t *8/06*

U.S. Cl. 303—21 F **3 Claims**



An anti-lock brake system utilizes automatic transmission governor pressure as the average rear wheel speed input signal. A check valve communicates fluid from the governor to an accumulator where it is stored. A flow control valve discharges fluid from the accumulator at a constant rate providing a pressure rate or change in the accumulator somewhat exceeding the pressure rate or change or the governor pressure during vehicle deceleration at the maximum achievable rate. The pressure differential resulting between the accumulator pressure and the wheel speed pressure from the governor during periods of excessive wheel deceleration operates a control valve which exhausts the support pressure from a conventional brake pressure modulator to release the brakes. A period of wheel acceleration follows the brake release and during the resulting wheel speed recovery, the accumulator is recharged and the control valve is shifted to reapply support pressure to the modulator. An acceleration sensing circuit is provided which senses the rapid wheel speed recovery subsequent to brake release on a high coefficient surface and reapplies support pressure to the modulator even before the control valve is restored to its normal position so as to hasten the application of the brakes and thereby compensate for the inherent time delay in cycling of the control valve and modulator.

3,810,683

TEMPERATURE COMPENSATED MAGNETIC BEARING ASSEMBLY FOR AN INDUCTION METER

Joseph M. Keever, Raleigh, and William J. Zisa, Cary, both of N.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

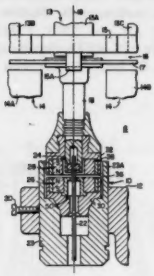
Filed Dec. 21, 1972, Ser. No. 317,331

Int. Cl. F16c *39/06*

U.S. Cl. 308—10 **5 Claims**

A temperature compensated magnetic bearing assembly for an induction meter includes upper and lower permanent magnets including both series and shunt temperature compensat-

ing magnetic flux paths. The magnetic fluxes in the shunt and series paths produce opposing compensating effects with temperature variations to maintain a constant support gap between the permanent magnets throughout an extended temperature range.



3,810,684

LAMPS

Kenneth Buckley Robinson, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Dec. 23, 1971, Ser. No. 211,490

Claims priority, application Great Britain, Apr. 14, 1971, 9400/71; May 26, 1971, 17290/71

Int. Cl. H01j *9/38*

U.S. Cl. 316—4 **5 Claims**

A method of making a lamp comprises inserting a filament assembly into a lamp envelope, and forming a pinch seal in the envelope around the lead-in conductors to the filament with a relatively small passage remaining through the seal. The atmosphere in the lamp can be dosed and pumped through the passage, and by applying pressure to the inside of the envelope during pinching through the passage the envelope can be forced against the inside of a mould. Subsequently the passage is closed.

3,810,685

MANUFACTURE OF TUNGSTEN HALOGEN LAMPS

George Eric Coxon, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Oct. 6, 1971, Ser. No. 187,130

Claims priority, application Great Britain, Oct. 15, 1970, 49133/70

Int. Cl. H01j *9/38*

U.S. Cl. 316—20 **4 Claims**

The present invention relates to a technique for introducing iodine into a tungsten halogen lamp in the form of a compound which is an involatile solid at room temperature. In accordance with this invention the iodine is introduced in the form of a complex metal or complex ammonium iodide which is dissociated or decomposed by heat. These complexes contain iodine in coordinated complex anions.

ERRATUM

For Class 316—5 see:
Patent No. 3,811,002

3,810,686

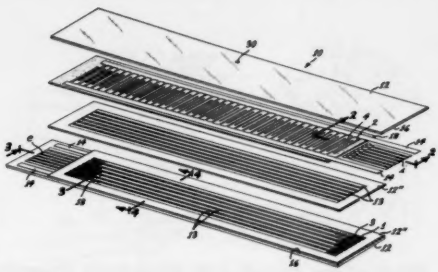
METHOD OF FABRICATING A PLASMA CHARGE TRANSFER DEVICE

William Earl Coleman, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed July 7, 1972, Ser. No. 269,802

Int. Cl. H01j *9/38*

U.S. Cl. 316—20 **4 Claims**



The method of fabricating a plasma charge transfer device comprising forming electrodes on a pair of substrates and coating certain electrodes with a coating of dielectric material which forms the wall on which a charge is formed during the operation of the device, forming cavity material on the pairs of substrates to hold an ionizable medium to be activated by an electric pulse applied to the electrodes, and positioning and sealing the two pairs of substrates to enclose the cavity, and filling the cavity with the ionizable medium to form a complete plasma charge transfer device.

3,810,687

APPARATUS FOR RECONSTRUCTING AN IMAGE OF AN OBJECT WHICH IMAGE HAS BEEN RECORDED IN HOLOGRAPHIC FORM

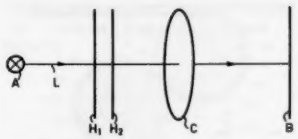
Hendrik De Lang, and Christiaan Hendrik Frans Velzel, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 285,023

Claims priority, application Netherlands, Sept. 9, 1971, 7112393

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **4 Claims**

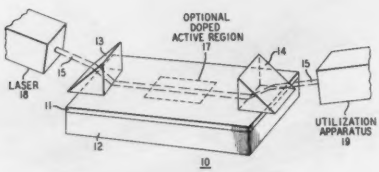


An apparatus for reconstructing an image of an object, which image has been recorded in holographic form, is described which comprises a source of radiation capable of emitting a reconstructing beam of radiation, and two holograms the corresponding points of which have a phase difference of 90°. It is shown that by preparing one of the holograms as a phase holograms and the other as an amplitude hologram the conjugate image can be suppressed in a simple optical arrangement.

3,810,688
OPTICAL WAVEGUIDING DEVICES USING MONOCRYSTALLINE MATERIALS OF THE SILLENITE FAMILY OF BISMUTH OXIDES

Albert Anthony Ballman, 627 Lincoln Ave., Woodbridge, N.J., and Ping King Tien, 19 Lisa Dr., Chatham, N.J.

Filed May 21, 1973, Ser. No. 362,255
Int. Cl. G02b 5/14
U.S. Cl. 350—96 WG 10 Claims

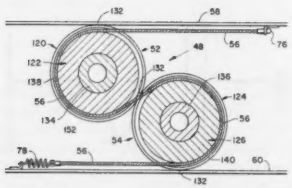


Monocrystalline materials of the sillenite family of bismuth oxides are used in the fabrication of optical thin-film devices. The sillenite materials are cubic in crystalline structure, transparent in the visible and near-infrared portions of the spectrum, electro-optic, piezoelectric, optically active, have useful acoustic surface wave coefficients and can be grown into high quality optical thin films by heteroepitaxial growth techniques. This wide range of properties in the light-guiding monocrystalline film should prove useful in the fabrication of a variety of thin-film devices suitable for integrated optical circuit arrangements. One such device is disclosed employing a thin light-guiding sillenite film upon which is deposited a pair of interdigital electrodes. The device serves as a thin-film electro-optical switch and modulator for a guided light beam.

3,810,689
DEVICE FOR VARYING LIGHT TRANSMISSION EMPLOYING ROLLER-CABLE MECHANISM

Donald E. Moodie, Marblehead, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 173,838, Aug. 23, 1971, Pat. No. 3,743,381. This application Oct. 16, 1972, Ser. No. 297,623
Int. Cl. G02f 1/16
U.S. Cl. 350—159 26 Claims

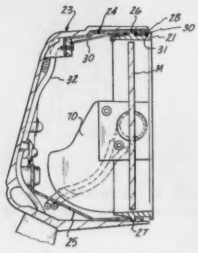


A control device comprising a roller-cable and guiding assembly which minimizes friction. The device includes a pair of rollers mounted in a roller cluster, displaceable along a cable within a guideway. Carried on each roller of the cluster is a free wheeling sleeve roller which is configured for guiding the cable. Actuation and working output structure for such control device are set forth, as for example, a working output structure suitable for operating an arcuately mounted aircraft window.

3,810,690
REMOTELY CONTROLLED DAY-NIGHT REAR VIEW MIRROR

Donald R. Klein, Union City, Ind., and Fredrick C. Read, Greenville, Ohio, assignors to Sheller-Globe Corporation, Toledo, Ohio

Filed May 17, 1972, Ser. No. 254,265
Int. Cl. B60r 1/06; G02b 7/18
U.S. Cl. 350—282 24 Claims

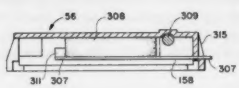


A remotely controlled day-night rear view mirror wherein the mirror can be reversed for day-night use and adjusted for varying driver positions comprising a housing or shell, a bezel pivotally mounted about a first axis in the shell and a reversible mirror mounted in the bezel about a second axis. A single externally mounted and manually operated lever manipulates the mirror through cables.

3,810,691
PHOTOGRAPHIC APPARATUS INCLUDING RESILIENT MIRROR MOUNT

Myron A. Seiden, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 78,032, Oct. 5, 1970, Pat. No. 3,641,886. This application Aug. 12, 1971, Ser. No. 171,353
Int. Cl. G02b 5/08
U.S. Cl. 350—288 1 Claim



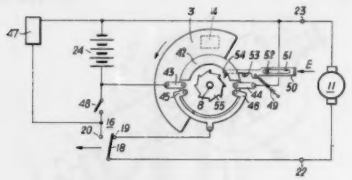
In an optical system, for example, in a camera, a light reflective unit and associated system. In terms of completing one light path or being moved out of the way to facilitate the completion of another light path, a light reflective element precisely repeatably locatable in the one light path. Associated structure for so moving the light reflective element by moving the light reflective unit. Light baffle means movable with the reflective unit to prevent reflection from the reflective element in the out of the way situation of the reflective unit. Resilient mounting of the reflective element in the reflective unit. Precisely located stop means operative with respect to the reflective element to precisely locate the reflective element for completion of the one light path. The reflective unit as a box-like structure with fold down opposite ends providing reflective element leg receiving openings when folded up. Provides inexpensive structure for precise location of reflective element in repeatably precise completion of an optical path. Reflective unit in a system for sequentially recording images of two scenes on mutually exclusive areas of a sheet of photographic material.

3,810,692

PHOTOGRAPHIC FILM-HANDLING APPLIANCE

Josef Drasch; Robert Scheiber, and Harald Wessner, all of Vienna, Austria, assignors to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

Filed July 6, 1971, Ser. No. 159,698
Claims priority, application Austria, July 6, 1970, 6112/70
Int. Cl. G03b *1/00*
U.S. Cl. 352—174 **10 Claims**



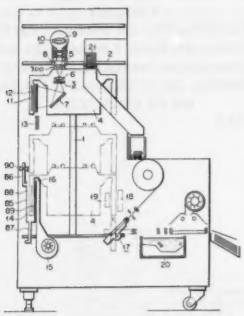
An electric motor is energizable to rotate a rotary shutter. A release switch is movable between an operative position and an inoperative position. A power supply circuit is adapted to energize the motor when the release switch is in the operative position. Electric braking means are energizable to stop the shutter. Fully electric brake control means are operatively connected to the shutter and arranged to de-energize the braking means when the release switch is in its operative position and to energize the braking means at least temporarily so as to stop the shutter in a predetermined position when the release switch has moved from its operative position to its inoperative position.

3,810,693

COLOR ELECTROSTATIC COPYING APPARATUS

Yushi Matsumoto, Tokyo, and Tsuneo Tashiro, Kanagawaken, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Aug. 15, 1972, Ser. No. 280,845
Claims priority, application Japan, Aug. 18, 1971, 46-62711
Int. Cl. G03g *15/00*
U.S. Cl. 355—4 **5 Claims**



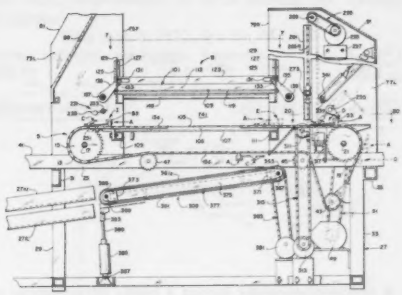
A color electrostatic copying apparatus comprising a rotatable and vertically movable optical device including a plurality of film carriers, a plurality of optical units and a plurality of copying paper holding units, these three groups of members being arranged in optically facing relationship; a light projector including a plurality of filters so arranged as to face said optical units and a plurality of light sources; developing and washing devices disposed at the lower part of the apparatus so as to face said copying paper holding units; and means for feeding a plurality of sheets of copying paper to said copying paper holding units and drawing out said sheets therefrom.

3,810,694

PHOTOGRAPHIC PRINTING APPARATUS

Robert E. Harrell, Manchester, and Richard E. Hadley, Creve Coeur, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Continuation-in-part of Ser. No. 71,162, Sept. 10, 1970, abandoned. This application Apr. 17, 1972, Ser. No. 244,364
Int. Cl. G03b *27/00, 27/42*
U.S. Cl. 355—18 **35 Claims**



A photographic printing apparatus, particularly for exposing lithographic plates to light through films, having a table on which a film may be assembled with a plate in registration therewith, the plate/film assembly then being fed to and gripped by a conveyor, which conveys it to a position within a vacuum frame unit at an exposure station, after which the vacuum frame unit is closed and evacuated for pressurizing the assembly. The plate is then exposed, the vacuum unit is opened, and the conveyor actuated to feed the exposed plate with the film thereon to an output station, at which the grip is released, and a vacuum lift picks up the film from the plate and drops it into a chute for return to the entrance end of the apparatus, the plate being fed forward out of the apparatus by a plate feed roll arrangement.

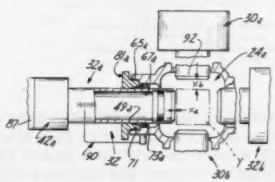
Also, adaptations of this apparatus for contact exposure of lithographic plates to light through film from a roll, and for exposure of lithographic plates via projection of enlarged images from microfilm or other film.

3,810,695

FLUID ANALYZER WITH VARIABLE LIGHT PATH

James J. Shea, Dearborn Heights, Mich., assignor to Gam Rad Incorporated, Detroit, Mich.

Filed Dec. 14, 1972, Ser. No. 315,093
Int. Cl. G01n *21/00, 1/10*
U.S. Cl. 356—73 **15 Claims**



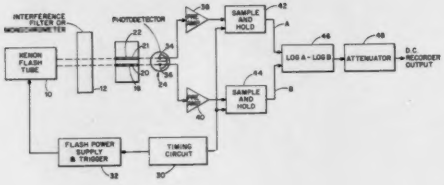
A turbidimeter or fluid analyzer having the length of the light path selectively variable whereby different ranges of turbidity, contamination or the like can be detected.

3,810,696

IMPROVED ANALYTICAL APPARATUS FOR MEASURING LIGHT ABSORBANCE OF FLUIDS

Burleigh M. Hutchins, Jr., North Attleboro, Mass., assignor to Waters Associates, Inc., Framingham, Mass.

Filed Feb. 20, 1973, Ser. No. 334,135
Int. Cl. G01j 3/42
U.S. Cl. 356—93 31 Claims



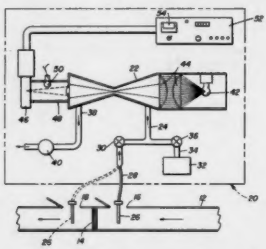
A spectrophotometer having a highly advantageous combination of sensitivity and usefulness over a broad spectrum of wavelength. The primary feature of the apparatus is a rapidly pulsed flash tube, say a xenon flash tube, used in conjunction with a dual photodetector and appropriate timing circuits. The device not only achieves the aforementioned advantages but also provides a more constant light source than those presently available, and, allows construction of a more compact and versatile instrument.

3,810,697

PORTABLE FILTER EVALUATION APPARATUS

Samuel B. Steinberg, Baltimore, Md., assignor to Air Techniques, Inc., Baltimore, Md.

Filed Aug. 10, 1972, Ser. No. 279,443
Int. Cl. G01n 21/00
U.S. Cl. 356—103 10 Claims



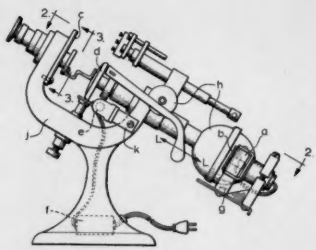
Portable apparatus is provided for determining the efficiency of an air filter. The apparatus includes a particle scattering chamber through which a sample of air is passed. Light rays are directed through the chamber and reflected prticles, such as solid particles, within the air sample are sensed by a photo cell. The photo cell generates an electrical signal which is used by a pentrating meter to indicate the level of particles in the air sample. Various calibration techniques establish zero and 100% limit points and also control the intensity of the light rays during operation of the apparatus.

3,810,698

ANALYZER FOR SIMULTANEOUSLY DETERMINING THE RX, PHOTOCHROMIC, AND HARDENING CHARACTERISTICS OF LENSES

St. Barth Alaska, 1530 Chickasaw Dr. Indian Hills, Maperville, Ill.

Filed June 16, 1972, Ser. No. 254,951
Int. Cl. G01b 9/00
U.S. Cl. 356—124 2 Claims



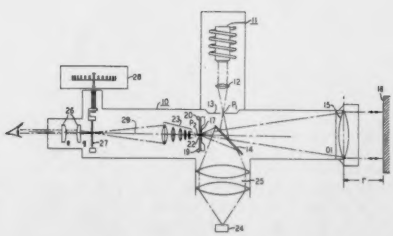
Instruments have been known which will determine the prism, cylinder power, and spherical power of an ophtholmic lens. My invention improves the existing optical instruments, in that my optical instrument has the additional advantages of analyzing the ionic properties of a chemically treated lens by the use of a prism, which disperses light into its spectral colors, and simultaneously polarizes light. The polarized light determines if lenses have a maltese pattern as shown for heat treated and air cooled hardened lenses. Another advantage of my instrument is it can determine by the use of Black lite, the chemical features of a lens to activate silver halide crystals and thus differentiate this type of lens photochromic lenses composition, from the conventional lenses which are made of ordinary ophtholmic glass or plastic. In chemically treated lenses to make them hard, the spectral polarized images will change hue and saturation when the chemically treated lens is moved before the face of the polarized prism.

3,810,699

MEASURING SMALL DISPLACEMENTS

Jeofry Stuart Courtney-Pratt, Locust, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,243
Int. Cl. G01b 11/26
U.S. Cl. 356—153 3 Claims



A modified autocollimator is disclosed which uses the position of a hole placed in a thin opaque film by a reflected laser

pulse as a measure of angular displacement of a surface of interest. The hole has a hard, definite edge which can be targeted with greater measurement accuracy than conventional diffraction limited Rayleigh spots.

3,810,700

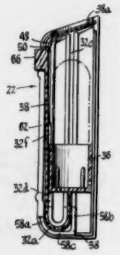
SLIDE CLOSURE COSMETIC STICK DISPENSER CASING

James W. Bryan, 15 Madison Springs Dr., Madison, Conn.

Filed Jan. 12, 1972, Ser. No. 217,086

Int. Cl. A45d *40/06*

U.S. Cl. 401—59 **5 Claims**



A cosmetic stick dispenser casing comprising a two-piece, tubular plastic body having left and right halves divided along a median, diametric (longitudinal) plane, and a one-piece plastic cup and manually-operable push-pull strap, the latter riding in a groove having a direction-reversing bend whereby the operable portion of the strap and the cup move in opposite directions. The casing halves have cooperable, keying projection-and-socket means at the direction-reversing portion of the groove whereby assembly of the parts can be easily effected by laying the cup and strap in that casing half which has the projection, with the strap curved and additionally confined by the projection, and thereafter applying the other casing half having the socket, over the assemblage that includes the cup and strap. The assemblage being thus completed, securement can be effected by a sonic seal or other process.

3,810,701

AUTOMATIC TWO-PART CONTROL DEVICE FOR BALL POINT PENS AND SIMILAR WRITING INSTRUMENTS

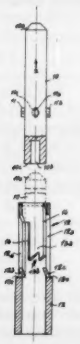
Renato Freccero, Alpignano, and Silvano Dolei, Settimo Torinese, both of Italy, assignors to Major S.p.A., Settimo, Turen, Italy

Continuation of Ser. No. 108,938, Jan. 22, 1971, abandoned. This application Jan. 30, 1973, Ser. No. 328,026

Claims priority, application Italy, Jan. 22, 1970, 67177/70

Int. Cl. B43k *24/08*

U.S. Cl. 401—110 **1 Claim**



This invention relates to an automatic control device for ball point pens and similar writing instruments, wherein a knob provided with offstanding operating elements is arranged to cooperate with members positioned in an encompassing shell whereby upon downward movement of the knob from an initial position within the shell, the knob is rotated and either projects or retracts the writing implement from the shell.

3,810,702

DEVICE FOR CLEANING VERTICAL OR SLOPING SURFACES

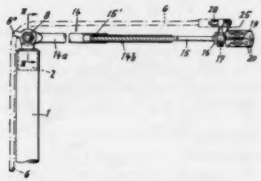
August Benz, Algierstrasse 70, 5620 Zufikon (Kt. Aargau), Switzerland

Filed Sept. 5, 1972, Ser. No. 285,737

Claims priority, application Switzerland, Sept. 3, 1971, 13008/71

Int. Cl. A47l *13/22*

U.S. Cl. 401—139 **6 Claims**



A device for cleaning surfaces consists of a cleaning body and a rinsing tube mounted on one end of an arm which is secured at its other end to an operating rod. The end of the arm connected to the cleaning body is formed of a torsion rod while its other end is fixed to the operating rod in a friction-fit joint. The cleaning body and rinsing tube extend transversely of the longitudinal axis of the arm and are angularly revoluble about the longitudinal axis of the arm due to its torsion rod.

3,810,703

RELEASABLE JOINTS WITH MALE AND FEMALE ELEMENTS

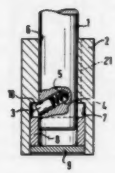
Max Pasbrig, Casa Luce-Via all'Eco, Orselina, Switzerland

Filed June 15, 1970, Ser. No. 46,203

Claims priority, application Germany, June 20, 1969, 1931492; Oct. 24, 1969, 2002193; Jan. 19, 1970, 6941516

Int. Cl. F16b *7/00*

U.S. Cl. 403—324 **16 Claims**



The invention relates to a releasable male and female joint in which the male and female parts can be slid one into the other and held in connected condition by means of locking means. The locking means are arranged in the male or the female element and comprise at least one sprag or locking body which is arranged in a recess in the element so as to be able to move axially. A compression spring, also arranged in the recess serves to urge the sprag partially out of the recess. The projecting part of the sprag is arranged to engage an abutment provided on the other of the two elements. For undoing

the joint releasing means are provided by means of which the sprag can be pressed back into the hole against the action of the associated compression spring and brought out of engagement with the abutment.

3,810,704

SCAFFOLD TUBE COUPLER

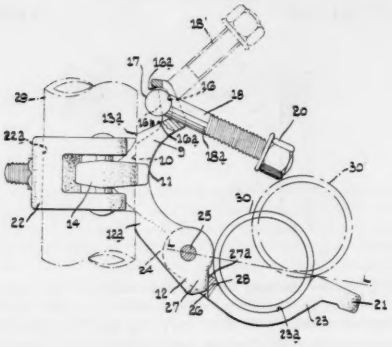
Jack Graham Lowe, Belbroughton, England, assignor to Burton Delingpole & Company Limited, Warley, Worcester, England

Filed July 28, 1972, Ser. No. 276,011

Claims priority, application Great Britain, July 30, 1971, 35850/71

Int. Cl. F16b *1/00*

U.S. Cl. 403—385 **3 Claims**



A coupler for connecting a pair of round scaffold tubes, embodying hinged tube clamping jaws having limited opening movement but exceeding 90° such as to allow lateral initial positioning of the scaffold tube passed the clamping bolt.

3,810,705

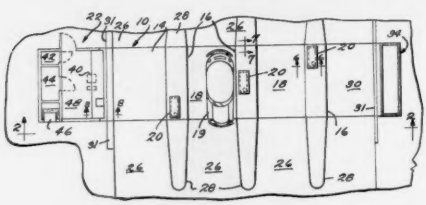
PORTABLE DRIVE-IN PLATFORM

Gerald E. Warriner, The First National Bank Bld., Suite 707, Miami, Fla.

Filed Mar. 10, 1972, Ser. No. 233,504

Int. Cl. E01c *1/00*

U.S. Cl. 404—1 **2 Claims**



A method of constructing an automobile drive-in facility comprising making a shallow excavation in the earth and installing a below-grade foundation within the excavation, positioning on the foundation a prefabricated unitary metal platform having upwardly projecting islands which divide the upper surface of the platform into a plurality of automobile stalls, said upper surface being close to grade level when the platform is supported on the foundation, and backfilling earth around the edges of the platform. The platform is a horizontally elongated box-like body constructed of interconnected metal members.

3,810,706

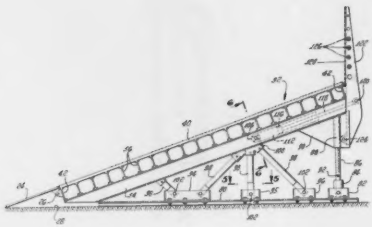
PORTABLE SECTIONAL RACETRACK FOR AUTOMOBILES OR MOTORCYCLES

Henry B. Grimm, 711 W. California Blvd., South Pasadena, Calif.; Chickau Matsuo, 1205 E. Sixth St., Los Angeles, Calif., and Donald C. Wilborn, P. O. Box 2011, South Padre Island, Tex.

Filed Nov. 13, 1972, Ser. No. 305,837

Int. Cl. E01b *23/00*

U.S. Cl. 404—1 **7 Claims**



A portable racetrack is made up of a plurality of types of sections provided with intercoupling means at each end. The types of sections provided include flat straightaway sections; curved sections which are adjustable to any desired degree of bank; and straight sections which are likewise adjustable to provide any desired degree of bank. Access ramps are provided. The adjustable bankable sections are capable of being skewed into configurations adapting them to be joined either to a flat straightaway section or a banked section at one end and to another differently banked section at the other end. A yieldable safety wall is provided at the high side of each banked section.

3,810,707

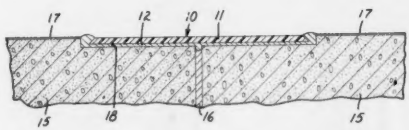
JOINT STRUCTURE AND METHOD

Barry F. Tungseth, and James A. Lindlof, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 852,256, Aug. 22, 1969. This application Aug. 9, 1971, Ser. No. 170,193

Int. Cl. E01c *11/02*

U.S. Cl. 404—67 **14 Claims**



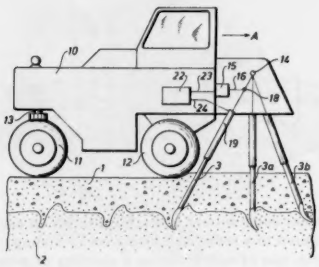
A semi-rigid flat cover strip, having permanently bonded over one of its major surfaces a tacky, self-sealing, and shock-resistant adhesive composition, is applied with its adhesive covered surface over the adjoined edges of adjacent structural members to provide a permanent joint structure which is useful, for example, as a highway construction joint.

3,810,708

METHOD AND APPARATUS FOR ANCHORING A CEMENT CONCRETE BODY SUCH AS A ROADWAY ONTO A BASE OF SAND, GRAVEL, SOIL OR SIMILAR MATERIAL

Gunnar Otto Hugo Olsson, Vibblabyvagen 16, Jakobsberg, Sweden

Filed Mar. 2, 1972, Ser. No. 231,297
Claims priority, application Sweden, Mar. 4, 1971, 2804/71
Int. Cl. E01c *21/00*
U.S. Cl. 404—72 **8 Claims**



The invention relates to an improved method of anchoring and bonding a layer of cement concrete, primarily a roadway, onto a base of such resilient material as sand, gravel, stony soil and similar material by forming anchoring elements extending from the cement concrete layer into holes formed in the base and filled with cement concrete flowing down from the cement concrete layer before the hardening thereof. The method operates with elongated hole forming members which are forced downwards in axial direction through the not yet hardened cement concrete layer at an inclined angle to the surface of said layer and into the base to a predetermined depth and thereupon turned about their lower ends to at least vertical and preferably an opposite inclined angular position and thereupon retracted in their axial direction to be swung back to the primary angular position for beginning a new cycle of operations. A preferably travelling apparatus for carrying out the novel method is equipped with at least one hole forming member which is swingably mounted on a horizontal axis and in an articulated manner connected with power means for causing the member to perform its sequence of axial advance, turning, axial retraction, and swinging return movements with adjustable speed and pressure of advance, preferably together with a plurality of cooperating hole forming members mounted on the same horizontal axis and individually controllable as to their speed and pressure by a common program work. The travelling apparatus is equipped with means to exercise a pressure on the cement concrete layer adjacent the hole forming members to force cement concrete into the holes when formed by the members.

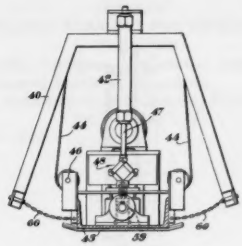
3,810,709

APPARATUS FOR MAKING A RIGID ROAD WHICH HAS A TEXTURED SURFACE

John Weaver, Beaconsfield, Buckinghamshire, and David Payne Maynard, Slough, Buckinghamshire, both of England, assignors to The Cement & Concrete Association, London, England

Continuation-in-part of Ser. No. 63,867, Aug. 14, 1970, Pat. No. 3,683,762. This application Nov. 2, 1971, Ser. No. 194,859
Claims priority, application Great Britain, Nov. 7, 1970, 53082/70The portion of the term of this patent subsequent to Aug. 15, 1989, has been disclaimed.
Int. Cl. E01c *19/22*
U.S. Cl. 404—93 **5 Claims**

A profile beam having a working surface constituted by alternate ridges and grooves and also having a rotatable shaft carrying radially outwardly displaceable weights is drawn across the surface of newly laid plastic concrete which has been laid to form a road, airplane runway or the like, whereby parallel grooves are formed in said concrete by the ridges. The



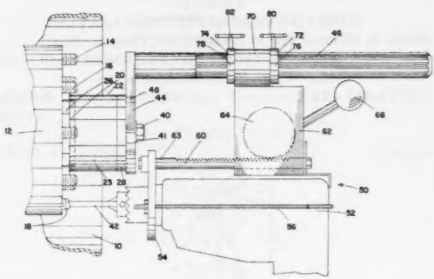
shaft is rotated and the weights move radially outwardly against spring influence to an extend which is a function of the speed of rotation of the shaft and of the rate of the springs. The intensity of vibration applied to the beam is continuously variable from zero to a maximum.

3,810,710

VEHICLE WHEEL STUD DRILL

Joseph O. Ennemoser, 226 Prince of Wales Dr., Gahanna, Ohio

Filed Aug. 10, 1972, Ser. No. 279,450
Int. Cl. B23b *45/14*
U.S. Cl. 408—111 **7 Claims**



A drilling tool for boring holes in broken studs of truck wheels. The tool has an internally threaded base which rotatably engages the threaded outer end of an axle housing. A drill press mechanism is adjustably mounted to the base for alignment of the drill bit with a broken stud. The entire tool is subsequently rotated at its threaded base to align the drill bit with other broken studs.

3,810,711

COOLED TURBINE BLADE AND ITS MANUFACTURE

Calvin W. Emmerson; George B. Meginnis, both of Indianapolis, and Jay O. Steinbarger, Camby, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 22, 1972, Ser. No. 291,212
Int. Cl. F01d *5/08, 5/18;* **F04d** *29/58*
U.S. Cl. 416—97 **1 Claim**

A turbine blade includes a hollow strut covered with a porous laminated material to provide a cooled blade portion and includes a supporting strut portion terminating in one or

two bases for attachment to a turbine wheel. It also includes a blade platform bicast to the strut at the junction of the blade and supporting portions. The strut may be fabricated by casting or forging two parts, each defining one face of the strut, bonding these together at the leading edge of the airfoil,

machining the leading edge portion, fitting the facing to the blade portion of the strut and bonding these together, then forming the blade portion to the desired airfoil contour and thereafter bicasting the platform onto the strut so as to cover the platform end of the blade facing.

3,810,712

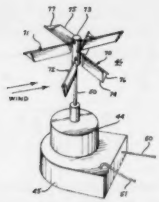
WIND POWERED MOTIVE APPARATUS

Edwin K. Hillman, 907 W. Desert Cove, Phoenix, Ariz.

Filed Nov. 2, 1972, Ser. No. 303,232

Int. Cl. F04d *29/36*

U.S. Cl. 416—117 **8 Claims**



A wind powered apparatus having a plurality of reciprocally pivotable centrally mounted members is disclosed. The extremities of each of these members support a vane. The two vanes of each member are set at right angles with respect to one another. In operation, the wind will engage, in turn, one vane of each of the members. As the vane is engaged, the force of the wind will tend to rotate the member. Rotation of the member will cause the engaged vane to pivot downwardly until it is normal to the force of the wind. The downward rotation of one vane will rotate the other vane upwardly whereby the other vane is parallel with the force of the wind. The disparate wind force on each of the opposed vanes on any given member will tend to cause the member to rotate about its mounting point. The rotation of the member about its mounting point will cause the mount itself to rotate.

3,810,713

HELICOPTER ROTOR SYSTEMS

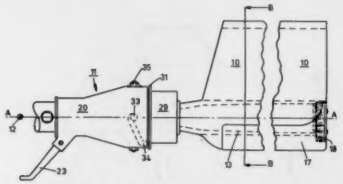
Walter Charles Joiner, East Coker near Yeovil, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England

Filed Oct. 30, 1972, Ser. No. 301,714

Claims priority, application Great Britain, Dec. 1, 1971, 57793/71

Int. Cl. B64c *27/48*

U.S. Cl. 416—205 **15 Claims**



A helicopter rotor system is disclosed in which each rotor blade is secured to a radial hub extension by mating cylindrical members, one of which carries a plurality of protrusions adapted for engagement in slots formed in the remaining members.

3,810,714

DISPOSAL OF LIQUID SPILLAGE AND THE LIKE

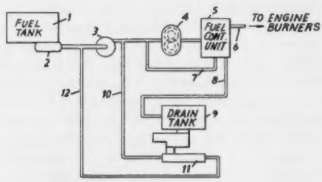
Horace George Turner, Chandler's Ford, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

Filed Oct. 19, 1972, Ser. No. 298,970

Claims priority, application Great Britain, Oct. 28, 1971, 50292/71

Int. Cl. F04b *23/08*; **F04f** *5/48*

U.S. Cl. 417—80 **9 Claims**



The fuel dumped into a drain tank of an aircraft on shutdown of a gas turbine engine is re-introduced into the fuel system after re-starting of the engine by means of a jet pump fed by fuel from the delivery side of the backing pump via a non-return valve, which, during shut-down of the engine, prevents flow of fuel from the jet pump into the drain tank under backing-pump inlet pressure; aspiration of air after emptying of the drain tank is prevented by a float valve.

3,810,715

HYDROSTATIC MACHINE VALVE BIASING SYSTEM

Nils P. Week, Allen Park; Carl E. Shellman, and Erkki A. Koivunen, both of Livonia, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

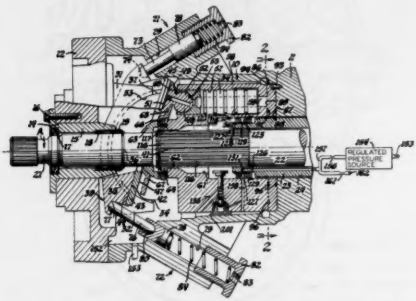
Filed Aug. 7, 1972, Ser. No. 278,443

Int. Cl. F04b *49/00*

U.S. Cl. 417—213 **30 Claims**

A hydrostatic pump or motor unit having a rotating cylinder biased into contact with a valve surface in proportion to separating forces to maintain sealing contact without excessive pressure. In an axial piston type hydrostatic unit, the

rotating cylinder block engaging a fixed annular valve plate and the swash plate reciprocate the pistons in the cylinders to deliver fluid from the cylinders through the valve plate. A biasing motor between the cylinder block and a member axially fixed relative to the valve plate and a control system to provide a biasing control pressure provides a biasing force varying as a function of the separating force between the valve plate and cylinder block. In one arrangement the biasing motor has an internal cylindrical surface on the cylinder block and an external cylindrical surface on a fixed portion of the



housing with a pair of annular pistons therebetween, one engaging in abutment on the cylinder block and the other engaging in abutment on the fixed housing portion to form a motor chamber supplied with biasing control pressure fluid to provide an auxiliary bias proportional to this pressure. In another arrangement the inner cylindrical surface is formed on the shaft rotating with the cylinder block. The biasing control system in one modification provides a biasing pressure proportional to speed and in another modification proportional to speed, power system pressure and displacement. A one or two step speed governor is mounted in the cylinder block.

3,810,716

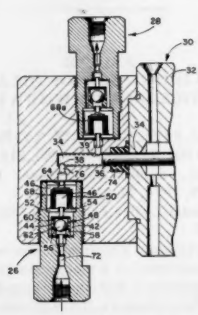
CHECK VALVE AND SYSTEM CONTAINING SAME

Louis Abrahams, Worcester, and Burleigh M. Hutchins, Jr., North Attleboro, both of Mass., assignors to Waters Associates Inc., Framingham, Mass.

Filed Oct. 27, 1972, Ser. No. 301,358

Int. Cl. F04b *21/02, 39/10*

U.S. Cl. 417—313 **11 Claims**



Novel check valves for use in precision pumping systems and particularly in a novel liquid chromatography pumping system incorporating the valves. The novel check valve comprises a filter compartment and a quick-responding ball check member which is protected by a filter element. The ball check member is constrained to have a minimal movement between its open and closed positions. A chromatography system is described which comprises a positive displacement pump incorporating such a valve on each of the inlet and outlet sides of the pump. On each side of the pump, a filter is used to avoid contamination of the ball seal chamber by pump seal debris.

3,810,717

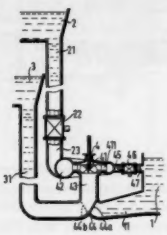
STARTING ARRANGEMENT FOR REVERSIBLE PUMP-TURBINES

Savo Rakcevic, Ljubljana, Yugoslavia, assignor to Titovi Zavodi Litostroj, Ljubljana, Yugoslavia

Filed July 19, 1972, Ser. No. 273,033

Int. Cl. F03b *3/10*

U.S. Cl. 417—323 **4 Claims**



A pumped-storage system using a reversible turbo pump for generating electricity and for displacing water into an upper reservoir. A reservoir of water at a head sufficient to drive the turbo-pump to a speed enabling it to be motor driven effectively is connected to the turbo pump and drives the latter for starting in the pump mode, the water passing into a tail-water reservoir.

3,810,718

SUBMERSIBLE PUMP

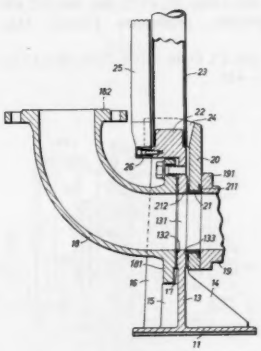
Albert Blum, Scheiderhoehe, Lohmar, Germany

Filed Nov. 30, 1971, Ser. No. 203,305

Claims priority, application Germany, Nov. 30, 1970, 2058737

Int. Cl. F04b *39/12*

U.S. Cl. 417—360 **3 Claims**



A submersible electric motor-pump assembly having a connection pedestal disposed between the pump outlet and the discharge pipe. The connection pedestal serving as a foot for a guide element and as an abuttment for the delivery outlet of the pump. The inlet opening of the discharge pipe is connected on the side of the connection pedestal opposite to the side the delivery outlet of the pump abuts against.

3,810,719
PUMP FOR DISCHARGING A PREDETERMINED QUANTITY OF FLUID

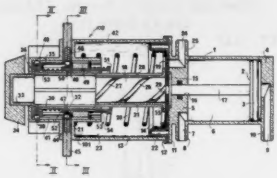
Adolf Johan Wolthers, Kaarst, Germany, assignor to Papillon Establissement, Vaduz, Liechtenstein

Filed Nov. 11, 1971, Ser. No. 197,840

Claims priority, application Switzerland, Nov. 23, 1970, 17307/70

Int. Cl. F04b *17/04*

U.S. Cl. 417—416 **13 Claims**



A pump for discharging a predetermined quantity of fluid. The pump housing contains a reciprocating pumping member, which is preferably driven in a forward stroke by mechanical, hydraulic or pneumatic means under the control of a solenoid which, when energized, causes the pumping member to take the forward stroke, the length of which corresponds to the predetermined quantity of fluid to be delivered by the pump. The solenoid remains energized until the forward stroke is completed, at which time it is de-energized. The stroke length of the pumping member, and hence the amount of fluid delivered by the pump, is adjustable. The driving force for the return stroke of the pumping member is preferably accomplished by means of a spring which is loaded during the forward stroke, the force of the loaded spring being overcome by the solenoid as long as the solenoid is energized, or by hydraulic or pneumatic means controlled by a conventional distribution member under the influence of the solenoid.

3,810,720
APPARATUS FOR TRANSFERRING LIQUIDS

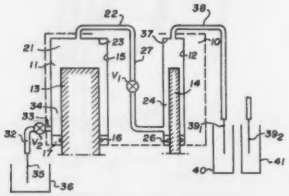
Gerard Lartigue, Fontenay-aux-Roses, and Andre Rousselet, Eaubonne, both of France, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 12, 1972, Ser. No. 252,640

Claims priority, application France, May 18, 1971, 71.17955

Int. Cl. F04b *23/06, 7/00;* **B67d** *5/18*

U.S. Cl. 417—429 **5 Claims**



The present invention relates to a device for transferring predetermined quantities of different liquid medium contained in separate containers which device comprises pump means for selectively withdrawing predetermined amounts of different liquid media from different containers and then transferring the withdrawn liquid media to the same receptacle.

3,810,721
ROTARY PISTON MACHINE WITH BYPASS REGULATION

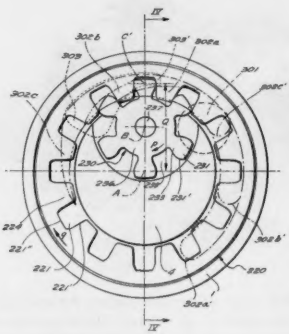
Charles Eyer, Soultz-sous-Forets, France, assignor to Consulta-Treuhand GmbH, Stuttgart, Germany

Filed Aug. 10, 1972, Ser. No. 279,671

Claims priority, application Germany, Aug. 16, 1971, 2140970; Apr. 28, 1972, 2220943

Int. Cl. F04b *23/00, 41/00;* **F01c** *1/10*

U.S. Cl. 417—440 **9 Claims**



A housing accommodates a system of chambers which are angularly spaced about an axis about which they also rotate. Each of the chambers has a first center line intersecting the axis of rotation and side walls which extend in parallelism with its center line. A system of pistons is also rotatable in the housing about a second axis and has a plurality of angularly spaced piston members each of which has a portion located on an imaginary circle concentric with the axis of rotation of the piston system and intersecting the axis of rotation of the chamber system. Ths piston members each have a longitudinal second center line which intersects the circle and the axis of rotation of the respective pistons enter into and exit from the respective chambers in longitudinal direction of the first center lines of the chambers.

3,810,722
ENGINES AND COMPRESSORS OF THE KIND IN WHICH A VALVE DEVICE ENGAGES WITH A HELICOIDAL ROTOR

Ferdinand Jeandel, 39 rue Roussin-75, XVI Paris, France

Filed Dec. 22, 1971, Ser. No. 210,710

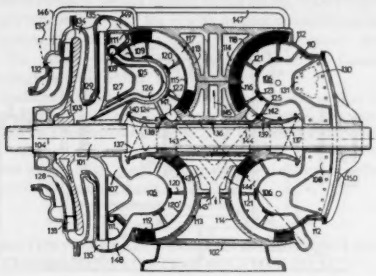
Claims priority, application France, Dec. 16, 1970, 70.45340; Nov. 29, 1971, 71.42621

Int. Cl. F01c *3/02;* **F02c** *7/00*

U.S. Cl. 418—195 **10 Claims**

The invention relates to a rotary machine which can be used as a motor, a compressor or a motor-compressor or the like. The machine comprises a first and a second body of revolution, one of which is stationary, the other rotating, and at least one helicoidal-spiral groove in the surface of the first body, and at least one valve device with peripheral vanes. The valve device rotates in a longitudinal plane of symmetry of the first body, the vanes engaging in the groove in the first body, the wall of the second body co-operating with the vanes to limit successive chambers of variable volume which change the pressure in a fluid. One of the bodies has at least one part in the form of a projection, also in the form of a body of revolution, the other body having at least one wall part, situated op-

posite the projection and having a shape complementary to the projection, there being very little clearance between these



parts. The shapes of these projecting parts are adapted to modify the flow of fluid through the machine so as to make it agree with the method of functioning of the machine.

3,810,723

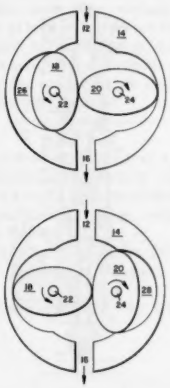
FLUID PRESSURE DEVICE

Robert Johnson, 215-A San Juan Rd., Watsonville, Calif.

Filed Sept. 21, 1972, Ser. No. 291,131

Int. Cl. F04b *17/10*

U.S. Cl. 418—205 **1 Claim**



A device for pumping fluid or for converting the power in a flow of water into constant rotary motion. A Roots-type pump or motor utilizing two centrally-mounted oval rotors is coupled to a transmission designed to convert the non-constant speed characteristic of the Roots-type device into constant rotary motion. The rotors are synchronized through the transmission, thus eliminating the need for gear teeth on the rotors and allowing leakproof seals of a resilient material to be used to surface the rotors. Two embodiments of the transmission are disclosed, one involving angled Hooke joints and the other utilizing a gear train including focus-mounted elliptical gears.

3,810,724

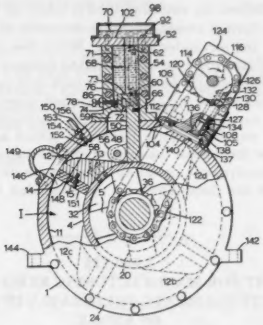
ROTARY ENGINE WITH CUSHIONING DEVICE FOR THE PARTITION

Paavo O. Luukkonen, 66 Abitibi Ave., Willowdale, Ontario, Canada

Filed Apr. 2, 1973, Ser. No. 347,055

Int. Cl. F01c *1/00*; **F03c** *3/00*; **F04c** *1/00*

U.S. Cl. 418—248 **5 Claims**



A rotary engine is provided with a device for cushioning the blows of a radially movable chamber partition against the rotor of the engine. The device includes a piston that enters a fluid filled compartment as the partition moves radially inwardly, the compartment having a restricted exit for the fluid.

3,810,725

APPARATUS FOR USE IN THE MANUFACTURE OF A TUBULAR FILM FROM PLASTIC MATERIAL

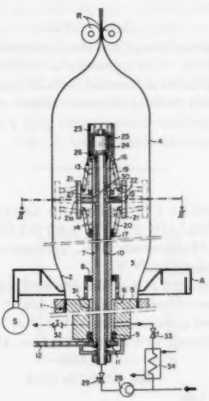
Jean Trub, Grand-Lancy, Geneve; Klaus Kneller, Nurensdorf, and Jean-Francois Gregoire, Aire, Geneve, all of Switzerland, assignors to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed Sept. 26, 1972, Ser. No. 292,317

Claims priority, application Switzerland, Sept. 28, 1971, 14149/71

Int. Cl. B29d *23/04*

U.S. Cl. 425—72 **14 Claims**



An apparatus for simultaneously inflating and cooling a melt extruded tube passing between a die orifice and a pair of rolls for flattening the thus radially distended tube. At least

one nozzle for supply of air is mounted on a tubular conduit which projects forwardly of the die and coaxially with the extrusion axis thereof and one end of which is connected to a source of air under pressure. The nozzle is secured to the tubular conduit in such a manner that it can be located in a first withdrawn position permitting the unhindered passage thereover of the tube as it leaves the die, and in a second position adjacent the inner surface of the tube as expanded. The nozzle will be in the first position at the commencement of operation before the extruded tube is taken up by the flattening rolls to form a closed chamber the walls of which can be inflated by the air under pressure. When the air under pressure has inflated the tube to the desired diameter, the nozzle is moved to the second position in which it is retained during further operation of the installation when it serves to cool the wall of the expanded tube. A nozzle is disclosed which is provided with an air-pervious diaphragm which adapts itself to the shape of the wall of the expanded tube and allows the best possible aerodynamic conditions for the creation of a film of air between the diaphragm and the expanded tube to be obtained.

3,810,726

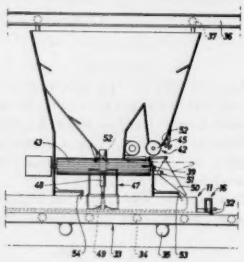
PLANT FOR MANUFACTURING REINFORCED CONCRETE ELEMENTS, PREFERABLY IN THE SHAPE OF A CASE

Georg Bjorhaag, Karlbergsuagen 21, 662 00 Amal, Sweden

Filed May 5, 1972, Ser. No. 250,790

Int. Cl. B29d *3/00*

U.S. Cl. 425—111 **2 Claims**



A plant for manufacturing reinforced concrete elements in the shape of a case, having working stations connected by conveyors and which working stations mold an open top box, form a lid strip for said box and include concrete pouring stations, concrete vibrating stations, mould moving and lifting station, lid strip smoothing station and a station for cutting said lid strip into individual strips.

3,810,727

THERMALLY CONTROLLED APPARATUS FOR MOLDING HOLLOW PASTIC ARTICLES AND THE LIKE

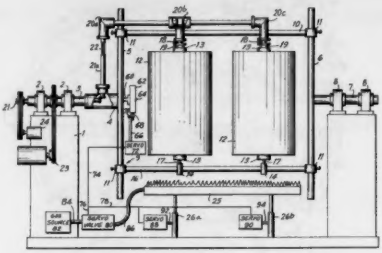
Stewart Pivar, Muttontown, N.Y., assignor to Ratotron Corporation, Farmingdale, N.Y.

Continuation-in-part of Ser. No. 256,695, May 25, 1972, and a continuation of Ser. No. 103,893, Jan. 4, 1971, Pat. No. 3,676,037, and a continuation of Ser. No. 724,803, April 29, 1968, abandoned. This application Nov. 15, 1972, Ser. No. 306,608

Int. Cl. B29c *5/04*

U.S. Cl. 425—144 **7 Claims**

Apparatus for molding hollow plastic articles in which a mold is simultaneously rotated about two mutually perpendicular axes, a source of heat being located at a position generally radially displaced relative to a circle described by the mold. The mold is supported in a frame which is of adjustable size, there being provided a telescopic drive for rotating the mold and which is extensible to accommodate adjustments in the frame. In the above-indicated apparatus as well as apparatus of the same type, the mold will generally have a profile such that the relative spacing beween the mold and source of heat will vary during relative movement therebetween. To provide thermal compensation for the tendency of the relative spacing to change, there is provided a cam rotatable with the mold and having a profile corresponding with the profile of the mold which controls either the flame of the burner constituting the source of heat or the physical location of the burner relative to the mold or both. The control is effected through a series of servo mechanisms controlled by a cam follower.



3,810,728

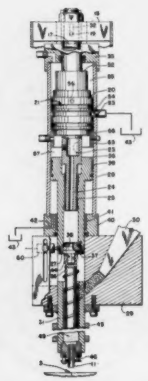
INJECTION MOLDING MACHINE

Arthur W. Jacobs, 5994 Columbia Rd., North Olmsted, Ohio

Filed Sept. 15, 1972, Ser. No. 289,436

Int. Cl. B29f *1/04*

U.S. Cl. 425—244 **9 Claims**



A reciprocating screw type injection molding machine having an injection assembly in which the feed screw is rotated and reciprocated in a heating cylinder by means of coaxially disposed linear and rotary hydraulic actuators respectively comprising an actuating cylinder having its piston in axial thrust and rotary driving engagement with the feed screw, and a fixed rotary actuator housing having its rotor axially slidably splined to said piston. The injection assembly has limited axial travel with respect to the rotary actuator housing to move the spring-closed nozzle of the heating cylinder into and out of engagement with the mold, said nozzle being opened when engaged with the mold upon admission of fluid pressure into the actuator cylinder between one side of said housing and said

piston, and being closed when disengaged from the mold upon admission of fluid pressure into the actuating cylinder on the other side of said housing to initiate rotation of said rotor and feed screw. The limited axial travel aforesaid is provided by interengageable positive stops on the actuator cylinder and rotary actuator housing to determine the extent of movement of the heating cylinder and nozzle away from and toward the mold respectively to permit closing of the spring biased nozzle and to prevent jamming of the nozzle against the mold except by the spring bias acting thereon and by the pressure drop across the nozzle as the plasticized material is flowing therethrough into the mold.

The machine herein is yet further characterized in that the injection assembly optionally may be mounted in a vertical position or in a horizontal position or if desired both horizontal and vertical injection assemblies may be provided for sequential injection of plasticized material of different colors or compositions into the mold.

3,810,729

APPARATUS FOR IMPROVING THE REGULARITY OF EMBOSSMENTS ON THIN POLYMER FILM

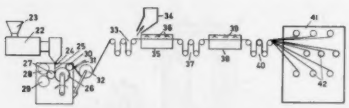
Albert George Patchell, Welwyn Garden City, England, assignor to Smith & Nephew Research Limited, Harlow, Essex, England

Filed May 5, 1972, Ser. No. 250,623

Claims priority, application Great Britain, May 7, 1971, 13818/71

Int. Cl. B29d *7/22*

U.S. Cl. 425—308 **8 Claims**



A hot melt film of plastic is embossed and cooled in the nip between a rotatable embossing surface and a rotatable cooperating surface at least one of which surfaces is generally resilient but resistant to purely local deformation, and is preferably a smooth hollow metal cylinder with a thin enough wall to flex and thereby accommodate small thermal or pressure distortions in the other surfaces.

3,810,730

SYSTEM FOR FEEDING PARTICLE SLABS RESTING ON A FLEXIBLE SUPPORT SURFACE TO AND FROM MULTI-LAYER PRESSES

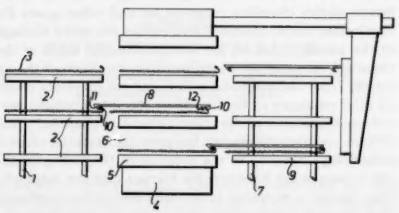
Bengt Johan Carlsson, Motala, Sweden, assignor to AB Motala, Verkstad, Motala, Sweden

Filed June 9, 1972, Ser. No. 261,318

Claims priority, application Sweden, June 11, 1971, 7621/71

Int. Cl. B29c *3/00*; **B29h** *5/20*; **B29j** *5/04*

U.S. Cl. 425—338 **4 Claims**



A system for feeding particle slabs or the like resting on flexible carriers into and out of a multi-layer press comprises infeed and outfeed strands located at respective ends of the press and with shelves for receiving particle slab carrying means. Shuttle members are reciprocably movable through the press and connecting means are mounted on said shuttle members and cooperate with corresponding means mounted on the particle slab carrying means in such a manner that said slab carrying means is coupled to the shuttle members for movement therewith in at least one direction through the press. Means are provided for uncoupling the particle slab carrying means from the shuttle members.

3,810,731

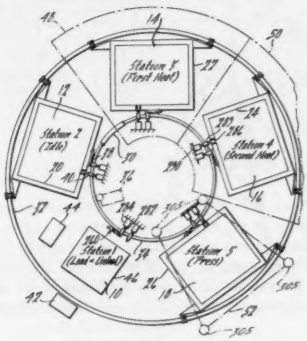
APPARATUS FOR FORMING PLASTIC SHEETS

David P. Anderson, Lathrop Village, Mich., assignor to Woodall Industries, Inc., Detroit, Mich.

Filed Aug. 1, 1972, Ser. No. 277,137

Int. Cl. B29c *17/04*

U.S. Cl. 425—388 **22 Claims**



There is herein disclosed a vacuum forming machine having a plurality of processing stations connected by an endless track on which forming frames carry plastic sheet material from station to station.

3,810,732

METHOD AND APPARATUS FOR FLAMELESS COMBUSTION OF GASEOUS OR VAPOROUS FUEL-AIR MIXTURES

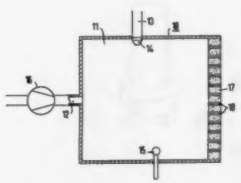
Christian Koch, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed June 23, 1972, Ser. No. 265,689

Claims priority, application Germany, July 1, 1971, 2132819

Int. Cl. F23d *13/16*

U.S. Cl. 431—7 **17 Claims**



Flameless combustion of gaseous or vaporous fuel-air mixtures is accomplished without a catalyst in a perforated sintered block which forms one wall of a mixing chamber. The

fuel air mixture is first passed through the perforated sintered block at a relatively low flow rate and burned at the entrance surface of the block until the latter has reached a temperature of approximately 950° C. At that point, the flow rate of the fuel-air mixture is increased by approximately 10 to 50 times to cause the combustion to take place within the perforated sintered block and the temperature of the latter to be increased to approximately 1,000° to 2,000 °C.

3,810,733

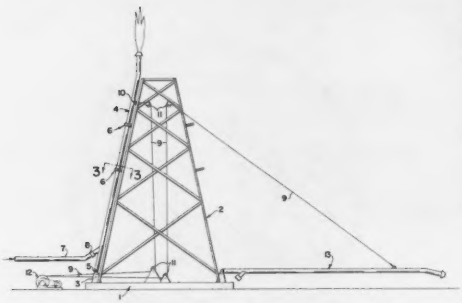
MULTIPLE FLARE STACK SUPPORT SYSTEM

John J. Reagan, Parma, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

Filed Mar. 20, 1972, Ser. No. 236,089

Int. Cl. F23d

U.S. Cl. 431—202 **3 Claims**



The invention is a multiple flare stack support system consisting of a base vertically extended from a horizontal surface, said base having an outer surface and an inner surface. On the outer surface of said base, two or more flare stacks are pivotably mounted in such manner that the top of the flare stack can be conveniently lowered away from the base for maintenance.

3,810,734

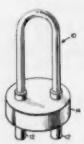
REFRACTORY RESISTANCE AND METHOD OF MANUFACTURE

James R. Willson, 94 Golden Hill Rd., Trumbull, Conn.

Continuation-in-part of Ser. No. 803,334, Feb. 28, 1969, abandoned. This application Sept. 10, 1971, Ser. No. 179,371

Int. Cl. F23q *7/22*

U.S. Cl. 431—258 **2 Claims**



An electric igniter for gas burners and the like having a self-resistant wire coated with an insulating material encased in a conductive coating of material having a high melting point, optimum coefficient of thermal resistivity and resistivity to oxidation at high temperature.

3,810,735

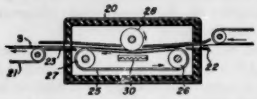
HEAT FIXING APPARATUS FOR FUSIBLE MATERIAL

Rabin Moser, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 318,570, Jan. 17, 1972, abandoned, which is a continuation of Ser. No. 859,327, Sept. 19, 1969, abandoned. This application Apr. 18, 1973, Ser. No. 352,860

Int. Cl. G03g *13/20, 15/20*

U.S. Cl. 432—59 **9 Claims**



A fixing system for fixing fusible material such as electroscopic particles upon support material. The system includes at least one fuser member in the form of an endless belt in pressure contact with another fuser member and between which the support material is transported. The fusing belt member is provided with a heat barrier blanket and is coated a release agent that will prevent "offset" of the particles being fused.

3,810,736

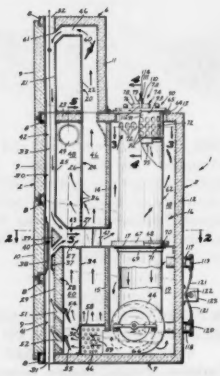
CURING OVEN FOR ENAMELED WIRE

Floyd A. Dumas, Hamel, Minn., assignor to Acrometal Products, Inc., Minneapolis, Minn.

Filed Aug. 31, 1973, Ser. No. 393,616

Int. Cl. F27b *9/28*

U.S. Cl. 432—59 **11 Claims**



An elongated casing includes partitions dividing the interior of the casing into an elongated work chamber, combustor inlet and outlet chambers, and gas passageways. The work chamber has opposite open inlet and outlet ends for passage of coated wire through the work chamber, and an elongated combustor tube has opposite gas inlet and outlet ends in the combustor inlet and outlet chamber respectively. A blower in the combustor outlet chamber receives air and other gases from the combustor outlet chamber and moves the same through some of the passageways to the inlet and outlet ends of the work chamber, some of the partitions directing flow of the gases inwardly from the inlet and outlet ends of the work chamber to an inlet passageway leading from the intermediate portion of the work chamber to the combustor inlet chamber. The casing defines air inlet opening to the combustor outlet chamber and a discharge opening to the exterior of the casing from one of the passageways between the blower and the work chamber. The burner is mounted at the inlet end of e combustor tube and receives combustion supporting air only from the work chamber, such air being laden with fumes evaporating from the enamel or similar coating on wire moving through the work chamber.

CHEMICAL

3,810,737

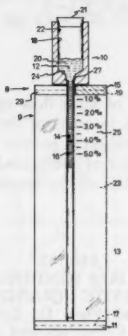
METHOD FOR MEASURING ALCOHOLIC CONTENT OF A LIQUID

Kenneth R. Geist and James E. Walsh, Milwaukee, Wis., assignor of a fractional part interest to John J. Brust, Slinger, Wis.

Filed Dec. 29, 1971, Ser. No. 213,524

Int. Cl. G01n *31/00*

U.S. Cl. 23—230 R **2 Claims**



Apparatus for measuring the alcoholic content of a liquid sample by means of a liquid reagent comprises a stoppered flask having a liquid-receiving recess which is divided into a lower section for receiving the liquid sample and an upper section of greater diameter than the lower section for receiving the liquid reagent. Scale means are provided for the flask and indicate alcoholic content of the sample. The scale means are disposed so that the zero point thereof indicative of no alcoholic content is aligned with the interface between the upper and lower sections of the flask.

The method comprises the steps of adding a predetermined amount of sample liquid to fill the lower section, adding approximately four times that amount of reagent in the form of water saturated with butynal or pentynol, mixing the sample and reagent by shaking the stoppered flask, letting the mixture settle, and reading the scale to determine where an interface between two different colored liquids is located.

3,810,738

BOD MEASURING APPARATUS

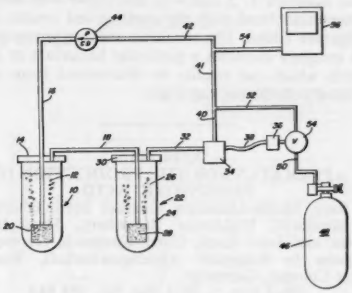
Lewis W. Fleischmann, 8502 Allenwood Road, Randallstown, Md. 21133

Filed Aug. 14, 1972, Ser. No. 280,086

Int. Cl. G01n *7/00, 7/02*

U.S. Cl. 23—230 R **15 Claims**

The BOD of a wastewater sample is measured by continuously recirculating an oxygen-containing gas through a closed loop gas passageway adapted to pass the gas in series through the wastewater sample, a carbon dioxide absorber and an oxygen partial pressure sensor. A makeup gas containing oxygen in a predetermined proportion is admitted to the closed loop passageway in an amount so that the oxygen partial pressure in the circulating gas remains constant. As the system is operated, sufficient makeup gas is admitted to the system to keep the oxygen



partial pressure constant. Consequently, the inert gas in the makeup gas admitted along with the oxygen causes the pressure of the system to build as more and more oxygen is consumed. Measurement of the gas pressure in the closed loop gas passageway after a predetermined amount of time therefore indicates the BOD of the sample.

3,810,739

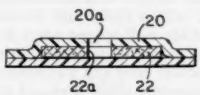
REAGENT-IMPREGNATED SUBSTRATE FOR THE PERFORMANCE OF BACTERIAL AND CHEMICAL TESTS

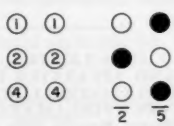
William J. Nussbaum, 84—25 Smedley St., Jamaica, N.Y. 11435

Filed Apr. 11, 1972, Ser. No. 243,021

Int. Cl. C12k *1/10;* **G01n** *31/14, 33/16*

U.S. Cl. 23—253 TP **27 Claims**





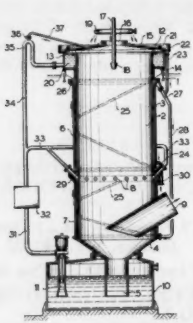
There is disclosed a reagent-impregnated substrate for the performance of bacterial and chemical tests. The sub-

strate includes a hole into which the test sample, for example, a suspension of a test organism, is placed. The substrate is enclosed in a plastic pouch except for a small opening on top of the substrate hole through which the test sample is applied to the substrate. Evaporation of the sample is kept to a minimum because no part of the substrate is under the pouch opening. To simplify the identification of particular bacteria, a set of substrates, each for performing a different test, is packaged as a unit with the substrates being arranged in rows and columns. Preferably, each column has three substrates and a different one of the numbers 1, 2 and 4 is associated with each. The numbers associated with the positive test results in each column are added. The resulting number sequence (e.g., 724) uniquely identifies a particular bacterium or class of bacteria which can readily be determined from a chart furnished with the packaged set.

3,810,740
APPARATUS FOR THE PRODUCTION OF PHOSPHORIC ACID

Leo Berg, Hurth-Alstadten, Gunther Breil, Oberhausen-Konigshardt, Waldemar Bielenberg, Hurth-Hermulheim, and Josef Koch, Hurth-Knapsack, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Dec. 7, 1971, Ser. No. 205,562
Claims priority, application Germany, Dec. 11, 1970, P 20 61 048.4
Int. Cl. B01j *1/00*; C01b *25/20*
U.S. Cl. 23—277 R **6 Claims**



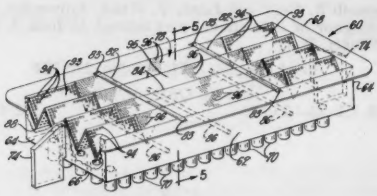
The apparatus comprises a double-walled combustion tower provided with a cover and bounded by an inside wall and an outside wall spaced apart from one another. The inside wall has a bottom section shaped as and terminating in a truncated cone and a combustion nozzle opening into the combustion tower is passed through the cover. An acid collecting tank is disposed downstream of the combustion tower; and an immersion tube which is open at its lower end is arranged so as to open into the truncated cone section of the combustion tower.

3,810,741
METHOD AND APPARATUS FOR PROCESSING GLASS AND CONTROLLING THE THERMAL PATTERN IN A STREAM FEEDER

Charles J. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation

Filed May 21, 1971, Ser. No. 145,683
Int. Cl. C03b *37/02*
U.S. Cl. 65—2 **7 Claims**

The disclosure embraces a method of and means for controlling a thermal or heat pattern and a distribution pattern of heat-softened material, such as glass, in an electrically-heated feeder having an orificed region for flowing streams of the heat-softened material wherein a current-conducting instrumentality in the feeder is con-



figurated with groups of glass flow openings or perforations of different sizes in areas of the instrumentality to provide a more uniform heat pattern in the glass in the feeder and promote flow of substantially uniform streams of glass from the orifices of the feeder.

3,810,742
APPARATUS FOR WINDING THERMO PLASTIC STRANDS

Jerome P. Klink and Phra D. Lyle, Granville, and Norman R. Shape, Columbus, and Alex P. Symborski, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sept. 6, 1972, Ser. No. 286,626
Int. Cl. C03b *37/02*
U.S. Cl. 65—11 W **24 Claims**

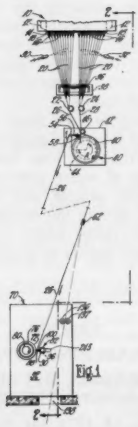


Fig. 1

Apparatus for processing linear material such as glass strand that includes means for linearly feeding the material and means for receiving the fed material, means for sensing the differences between the rate of linear feed and collection of the material during a change in linear speed of the material, first control means responsive to the

sensed differences to modify the speed of the feed means to bring the rate of feed of the material into conformity with the rate of collection, second control means for matching the linear rate of feed and collection of the material during time the first control means is not in operation, and means for switching between the two controls.

3,810,743

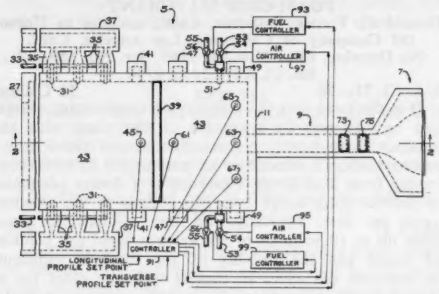
THERMAL CONDITIONING OF MOLTEN GLASS

Frank J. Rau, Pittsburgh, and Joseph R. Staahl, Jr., Conneaut Lakes, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 9, 1973, Ser. No. 330,904

Int. Cl. C03b 5/04

U.S. Cl. 65—29 **9 Claims**



The refiner portion of a tank for melting glass is provided with a plurality of front-end-firing burners and means for sensing the temperature of the glass at suitable locations in the refiner portion of the tank. Control means responsive to the temperature-sensing means are used to make relatively small adjustments in the rate of firing the front-end-firing burners. This makes it possible to control, as desired, the temperature of the glass in the canal and the regime of temperatures in the refiner product of the tank. The other benefits of using front-end-firing burners (control of silica defects) are substantially maintained, while the establishment of particular thermal patterns and closer control of glass temperature improves the quality and throughput of the product flat glass.

3,810,744

METHOD FOR MAKING FUSED SILICA GLASS COMPOSITES

William H. Dumbaugh, Jr., 6 E. Chatfield Place, and Joseph W. Malmendier, 5 Morningside Drive, both of Painted Post, N.Y. 14870

No Drawing. Filed Aug. 31, 1972, Ser. No. 285,484

Int. Cl. C03c 25/02; B29b 3/00

U.S. Cl. 65—42 **3 Claims**

This invention relates to a method for applying a fused silica-based glass cladding or layer to the surface of glasses, glass-ceramics, ceramics, and organic plastic bodies wherein said silica-based glass is first applied through flame hydrolysis to a temporary foil carrier.

3,810,745

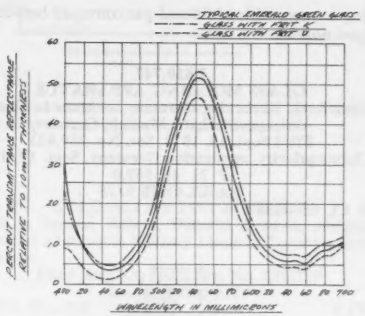
METHOD OF ADDING GLASS COLORANT COMPOSITION

Erwin C. Hagedorn, Oregon, and Dallas P. Hall, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Continuation-in-part of abandoned application Ser. No. 21,375, Mar. 20, 1970, which is a division of application Ser. No. 579,971, Sept. 16, 1966, now Patent No. 3,561,985, dated Feb. 9, 1971, which in turn is a continuation-in-part of abandoned application Ser. No. 285,088, June 3, 1963. This application May 8, 1972, Ser. No. 251,421

Int. Cl. C03b 5/16

U.S. Cl. 65—134 **9 Claims**


TYPICAL EMERALD GREEN GLASS
GLASS WITH FRIT C
GLASS WITH FRIT D
PERCENT TRANSMITTANCE (REFERENCE SCALE SET TO 100 mm THICKNESS)
WAVELENGTH IN MILLIMICRONS

Colorant-enriched frit glass compositions of the following ingredients are disclosed together with methods of producing colored glasses using same:

	Percent by weight		
	Composition 1	Composition 2	Composition 3
Ingredients:			
SiO_2	15–50		
Cr_2O_3	2–10	2–10	
R_2O	23–46		
Na_2O	X	21–30	10–40
K_2O	(1)	0–7	
B_2O_3	10.5–47	49–70	35–70
R_2O plus B_2O_3	44–74		
Fe_2O_3		0–10	
CoO		0–8	0–43
MnO		0–18	0–23
PbO, BaO and ZnO		0–15	
NiO			0–18
Fe_2O_3			0–18
CuO			0–28

At least 2%.

[1] Less than 25% X.

3,810,746

DEVICE FOR SEALING ELECTRIC FILAMENT LAMPS OR DISCHARGE TUBES

Franciscus Josephus van den Broek, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 840,223, July 9, 1969. This application Sept. 16, 1971, Ser. No. 181,194

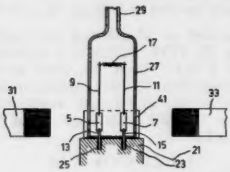
Claims priority, application Netherlands, July 6, 1968, 6809597

Int. Cl. C03b 23/14

U.S. Cl. 65—140 **2 Claims**

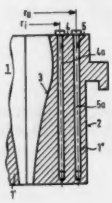
A burner device for use in sealing pinch-type lamps, the burner having a plurality of nozzle orifices directed toward a lamp's sealing region with the lower nozzles

preferably of square cross-section conveying only gas, and the upper nozzles preferably of circular cross-section con-



veying oxygen, with additional gas conveyed between said oxygen nozzles.

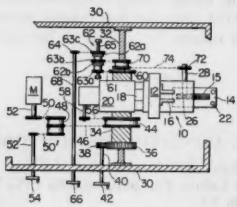
3,810,747
GLASS MOLDING APPARATUS
Peter Bork, Karlsruhe, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed Sept. 15, 1972, Ser. No. 289,621
Claims priority, application Germany, Sept. 17, 1971, P 21 46 569.0
Int. Cl. C03b *9/38*
U.S. Cl. 65—158 **2 Claims**



A glass molding apparatus includes the feature of at least one hole formed axially in the wall of a blow mold, for example, the hole extending parallel to the cylindrical outside surface of the mold for substantially the length of the mold cavity. The hole contains a device of the same length producing a signal responsive to temperatures along the length of the device, such as an electric resistance temperature measuring device of the tubular type having a temperature responsive resistance wire extending throughout its length. The signal produced represents an average of the temperatures within the mold wall throughout the length of the hole. By using two such holes and devices which are radially aligned and interspaced, two signals are obtained which by interpolation may be used to determine the average heat flow rate through the mold's wall and the average surface temperature of the mold cavity.

3,810,748
GLASS PROCESSING LATHE
Kunihiro Matuzawa, Mito, Kikuo Kimura and Ryo Sato, Ibaragi-ken, and Shigeji Nakajima and Yuichi Ikeda, Hitachi, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, and Nakajima Industry Company Limited, Ibaragi-ken, Japan
Filed Oct. 12, 1972, Ser. No. 296,896
Claims priority, application Japan, Dec. 17, 1971, 46/101,868; Dec. 29, 1971, 47/4,677
Int. Cl. C03b *23/00*
U.S. Cl. 65—271 **8 Claims**

A lathe for mechanical processing of massive glass articles including a lathe spindle and a base for supporting a burner means are mounted on an oscillating block rotatable about a substantially horizontal axis whereby the spindle may be rotated about a substantial angular



range, and a power transmission means disposed concentrically with the horizontal axis.

3,810,749
FOAM CROP MATURANT
Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed Nov. 26, 1969, Ser. No. 880,417
Int. Cl. A01n *5/00, 9/00*
U.S. Cl. 71—70 **12 Claims**

It is disclosed that the maturity of crop-bearing plants can be hastened by treatment of the plant with an aqueous foam having a discontinuous gas phase comprising carbon monoxide or an unsaturated hydrocarbon having from 2 to about 4 carbons at a dosage adequate to provide from about 1 to 300 pounds of the gaseous agent per acre. Typically, the foam composition contains up to 10 volumes of the gaseous agent per volume of liquid and the stability of the foam is sufficient to maintain the agent in contact with the plant for a period from about 5 to about 300 minutes, adequate to permit thorough assimilation of the gaseous agent by the plant and effect the hastening of the maturity of the treated plant.

3,810,750
PLANT GROWTH REGULATING COMPOSITION AND PROCESS
Alan John Davidson, Wokingham, and Edwin Francis George, Eversley, near Basingstoke, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed May 1, 1970, Ser. No. 33,939
Claims priority, application Great Britain, May 16, 1969, 25,114/69
Int. Cl. A01n
U.S. Cl. 71—78 **5 Claims**

This invention relates to a method of regulating the growth of plants, and to compositions useful therefor.

3,810,751
HERBICIDAL COMPOSITION OF A PYRIDAZONE DERIVATIVE AND CARBAMOYL-OXY PHENYL METHYL CARBAMATE
Adolf Fischer, Mutterstadt, and Karl-Heinz Koenig and Franz Reicheneder, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 695,328, Jan. 3, 1968. This application May 18, 1970, Ser. No. 38,589
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **1 Claim**

A composition comprising 1-phenyl-4-amino-5-halopyridazone-(6) and 3-(3'-methylphenylcarbamoyl)-oxy phenyl methyl carbamate. The composition has a strong herbicidal action on weeds but does not injure crop plants.

3,810,752
PYRIDINE-N-OXIDES AS CITRUS ABSCISSION AGENTS
Merrill Wilcox, 2911 NW. 30th Terrace, Gainesville, Fla. 32601
No Drawing. Filed Aug. 18, 1972, Ser. No. 281,901
Int. Cl. A01n 9/22
U.S. Cl. 71—94 5 Claims

A method of aiding in harvesting fruit wherein abscission is induced by application to the fruit bearing plant an effective amount of a compound of the formula:

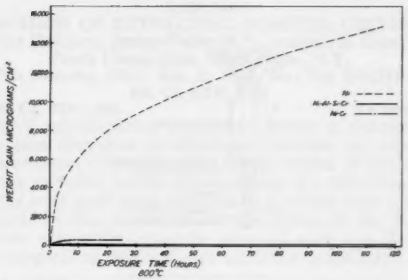
wherein R and R' are independently SH, SNa, CN, H, CH_3, $—SO_3H$, halogen, lower alkyl, lower alkoxy, OH, or NO_2, carboxyalkylenes and its amides or esters.

3,810,753
PROCESS FOR CASTING MOLTEN ALUMINUM KILLED STEEL CONTINUOUSLY AND THE SOLIDIFIED STEEL SHAPES THUS PRODUCED
Robert S. Miltenberger, Weirton, W. Va., assignor to National Steel Corporation
No Drawing. Filed July 31, 1969, Ser. No. 846,573
Int. Cl. B22d 27/20; C21c 7/10
U.S. Cl. 75—49 19 Claims

A molten aluminum killed steel containing 0.005–0.30% of carbon, 0.10–1.50% of manganese, 0.01–0.03% of silicon, 0.04–10% of aluminum, and the remainder iron and incidental impurities is introduced into a mold for continuously casting steel and cast therein to produce a solidified steel shape continuously. The molten steel is introduced into the mold through a tundish nozzle having an internal diameter sufficiently large to prevent plugging. In a preferred variant, an aluminum addition is made in the ladle in an amount to largely but not completely deoxidize the steel, the molten steel is agitated with R-H or D-H vacuum degassing apparatus, and the deoxidization is completed by making an aluminum addition in the vacuum vessel of the degassing apparatus. The solidified steel shapes may be cast in the form of slabs, and the slabs rolled to produce flat rolled products such as steel strip or plate. The quality of the solidified steel shapes is improved by preventing oxidation of the aluminum content of the molten killed steel prior to casting, and/or by providing a fluid slag over the molten steel in the mold to aid in separating nonmetallic inclusions therefrom prior to solidification.

3,810,754
OXIDATION RESISTANT NICKEL BASE ALLOYS
James A. Ford, North Haven, Conn., and Sheldon H. Butt, Godfrey, Ill., assignors to Olin Corporation
Filed Mar. 16, 1973, Ser. No. 342,271
Int. Cl. C22c 19/00
U.S. Cl. 75—171 4 Claims

Nickel base alloys containing alloying additions of aluminum, chromium and silicon are described which exhibit a unique and advantageous combination of high temperature mechanical properties and resistance to oxidation at high temperautres. In particular, the oxidation resistance of the alloys described is superior to that of pure nickel and other high nickel alloys such as Monel and Nichrome which are often used where oxidation is a problem. The oxidation resistance of these alloys is a result



of the formation of a tenaceous oxide film consisting essentially of the added alloying elements.

3,810,755
GOLD ALLOY FOR JEWELRY
David R. Jordan, Bolton, Ontario, Canada, assignor to Johnson Matthey & Mallory Limited, Toronto, Ontario, Canada
Filed Aug. 18, 1972, Ser. No. 281,719
Int. Cl. C22c 5/00
U.S. Cl. 75—165 4 Claims

Traces of aluminum are added to gold alloys of a predetermined carat designation to provide a clean and brighter investment casting for jewelry.

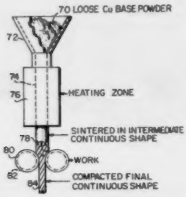
3,810,756
METHOD OF MAKING VALVE SEAT RINGS FROM A MIXTURE OF C, Pb AND A PRE-ALLOY OF Fe-Co-Ni-Mo BY POWDER METALLURGY
Max Koehler, deceased, by Michael Koehler, Osterfeldstrasse 51, 5802 Wetter (Ruhr) 4-Wengern, Federal Republic of Germany
No Drawing. Filed Mar. 23, 1972, Ser. No. 237,504
Claims priority, application Germany, Mar. 24, 1971, P 21 14 160.6
Int. Cl. B22f 3/16, 5/00
U.S. Cl. 75—214 5 Claims

A powder metallurgical method of making valve seat rings having a high heat resistance, while employing a metal powder which in addition to iron contains from 0.5 to 1% of carbon, from 0.7 to 1.5% of lead, from 1 to 2% of nickel, from 1.0 to 2.0% of molybdenum, and cobalt. As starting mixture is employed a pulverized pre-alloy which contains from 1 to 2% of nickel, 1.0 to 2% of molybdenum, from 6.0 to 7.0% of cobalt, and the remainder iron. To the thus pre-alloyed steel powder there is added carbon in quantities of from 0.5 to 1.0%, and lead at a quantity of from 0.7 to 1.5%. Subsequently, the mixture is briquetted, sintered, cold or hot post-compressed, and if desired, is annealed.

3,810,757
PRODUCTION OF ELONGATED METALLURGICAL MILL PRODUCT FROM LOOSE METAL POWDER
Henry L. Andrews, Framingham, and Donald A. Hay, Medfield, Mass., assignors to Copper Range Company, White Pine, Mich.
Filed July 14, 1972, Ser. No. 271,699
Int. Cl. B22f 7/02
U.S. Cl. 75—208 CS 4 Claims

A copper base continuous mill shape is produced by the steps of advancing a copper base powder having an initial

density on a support through a heating zone in a reducing atmosphere in order to sinter successive increments of the powder for a sufficiently long period to produce a self-supporting intermediate shape having a higher density,



and advancing the intermediate shape in a single pass through a working zone that reduces one or two dimensions to produce an elongated shape having at least 90% theoretical density.

3,810,758
PHOTOGRAPHIC MASKING SYSTEM

Vsevolod Tulagin, Rochester, and Leonard M. Carreira, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Original application Mar. 31, 1970, Ser. No. 24,152, now Patent No. 3,649,515. Divided and this application Oct. 8, 1971, Ser. No. 187,842
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.2 **10 Claims**

A rapid masking system in image producing apparatus and method by forming color selected first images for immediate use in exposing a photosensitive material especially of the photoelectrophoretic type for use as masks for image correction or formation.

3,810,759
MATTE PHOTOCONDUCTIVE LAYERS FOR USE IN ELECTROPHOTOGRAPHY

Richard W. Stahr and Theodore H. Morse, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 110,339, Jan. 27, 1971. This application Nov. 10, 1971, Ser. No. 197,488
Int. Cl. G03g *5/06*
U.S. Cl. 96—1.5 **8 Claims**

Polymeric beads of poly(methyl methacrylate) or polyethylene incorporated in the photoconductive layer of an electrophotographic element provide a matte photoconductive surface with good writing characteristics and one which resists image offset or smearing during development.

3,810,760
PHOTOGRAPHIC DRY COPYING PROCESS WITH ACYLACETONITRILE

Helmut Kampfer and Hans Ohlschlager, Cologne, Anita von Konig, Leverkusen, and Johannes Gotze, Bergisch Neukirchen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,314
Claims priority, application Germany, Feb. 11, 1971, P 21 06 577.0
Int. Cl. G03c *1/40, 1/52, 5/54*
U.S. Cl. 96—29 D **10 Claims**

Photographic images are produced by (1) imagewise exposing a light-sensitive layer containing at least one sensitizing dye from the class of the neutrostyryl dyes, the merocyanines or a cyanine dye containing a halogen substituted benzene ring or a heterocyclic ring derived from selenazol, a compound of the guanidine or biguanide series and an image-producing reducing acylacetonitrile derivative which is transferable at temperatures between 80 and 200° C., whereby, at the exposed areas the image-producing reducing compound is converted to a non-transferable compound, (2) bringing the exposed layer into contact with an image-receiving layer which contains compounds capable of reacting with the image-producing compound transferred from the unexposed areas of the light-sensitive layer to form colored products and (3) heating the layers while in contact with each other to a temperature of between 80 and 200° C. to produce a visible image.

3,810,761
DYES FOR PHOTOGRAPHY

Joseph Bailey, Harrow Middlesex, and Edward B. Knott, Bushey Heath, England, and Peter A. Marr, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Application Jan. 15, 1971, Ser. No. 106,893, now Patent No. 3,758,309, which is a continuation-in-part of abandoned application Ser. No. 778,333, Nov. 22, 1968. Divided and this application Dec. 7, 1972, Ser. No. 313,078
Claims priority, application Australia, Oct. 16, 1968, 44,870, 44,871; Belgium, Nov. 25, 1968, 66,581; Canada, Nov. 25, 1968, 35,997, 35,998; France, Nov. 25, 1968, 175,097; Germany, Nov. 25, 1968, 10,462
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **19 Claims**

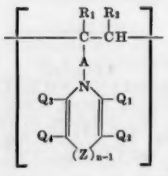
Dyes derived from 1H-pyrazolo[3,2-c]-s-triazoles are advantageously used in photographic silver halide elements as light-absorbing dyes for filter layers.

3,810,762
PHOTOCHROMIC COMPOSITION CONTAINING POLYHALOGENATED HYDROCARBON, SPIROPYRAN COMPOUND AND POLY-N-VINYLCARBAZOLE AND THE USE THEREOF

Urbain Leopold Laridon, Wilrijk, and Josef Willy van den Houte, Grimbergen, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,119
Claims priority, application Great Britain, Sept. 1, 1970, 41,749/70
Int. Cl. G03c *1/52, 5/24*
U.S. Cl. 96—48 R **24 Claims**

A photographic process wherein a visible image is formed by print-out or optical development in a recording material comprising in intimate admixture a spiropyran compound, an ultraviolet light-sensitive compound capable of producing on exposure with ultraviolet light with the spiropyran a dye salt and as sensitizing agent a polymeric compound containing recurring units of the following general structure:



wherein:

Z represents a sulphur atom or a single bond,
A represents a single bond or a —CH_2— group,
R_1 represents hydrogen or a lower alkyl radical,
R_2 represents hydrogen or a lower alkyl radical,
Q_1 and Q_2 each represent a hydrogen atom or together the necessary atoms to close an adjacent carbocyclic

ring or ring system including such ring or ring system in substituted form,

Q_3 and Q_4 each represent a hydrogen atom or together the necessary atoms to close an adjacent carbocyclic nucleus or ring system including such a ring or ring system in substituted form,

n represents 1 or 2.

Preferred recording materials contain a spirodinaphthopyran compound, carbon tetrabromide and/or iodoform and as sensitizing agent poly-N-vinylcarbazole acting as a binder and a triaryl stibine as antifogging agent.

3,810,763

PHOTOCHROMIC COMPOSITION CONTAINING POLYHALOGENATED HYDROCARBON, SPIROPYRAN COMPOUND AND ZnO OR Pb(II) OXIDE AND THE USE THEREOF

Urbain Leopold Laridon, Wilrijk, and Jozef Willy van den Houte, Grimbergen, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,122
Claims priority, application Great Britain, Sept. 1, 1970. 41,749/70
Int. Cl. G03c *1/52, 5/24*
U.S. Cl. 96—48 R **21 Claims**

A photographic process wherein a visible image is formed by print-out or optical development in a recording material comprising in intimate admixture a spiropyran compound, an ultraviolet light-sensitive compound capable of producing on exposure with ultraviolet light with the spiropyran a dye salt and as sensitizing agent an inorganic compound producing photoelectrons under the influence of activating electromagnetic radiation and having a basic or amphoteric character.

Preferred recording materials contain a spirodinaphthopyran compound, carbon tetrabromide and/or iodoform and a sensitizing agent photoconductive zinc oxide in conjunction with a triaryl stibine as antifogging agent.

3,810,764

METHOD OF PRODUCING EXPANDED, TEXTURED PROTEIN PRODUCTS

Doyle H. Waggle, Webster Groves, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed May 25, 1970, Ser. No. 40,382
Int. Cl. A23j *1/14*
U.S. Cl. 426—241 **22 Claims**

A method for producing expanded, textured protein products wherein a mixture of oleaginous seed materials and an aqueous liquid having a specified pH is formed and then mechanically tempering to impart surface orientation characteristics to the material and later isobarically heating to produce a bland, expanded, functional protein product.

3,810,765

PROCESS FOR PREPARING A COLD-WATER SOLUBLE FAT-CONTAINING POWDERED MILK PRODUCT

Taro Nagasawa, Taizo Ryoki, Takashi Shinozaki, Tadashi Watanabe, and Mitsuru Kanayama, Tokyo, Japan, assignors to Morinaga Milk Industry Co., Ltd.

No Drawing. Filed May 12, 1971, Ser. No. 142,738
Claims priority, application Japan, May 18, 1970, 45/41,672
Int. Cl. A23j *1/20*
U.S. Cl. 426—92 **6 Claims**

A fat-containing powdered milk product which is readily soluble in cold water can be obtained by mixing a powdered milk with a kneaded, powdered lecithin-sugar mixture prepared by making 0.2 to 1.5%, based on the weight of final product, of lecithin to be adsorbed in a water soluble saccharide.

ERRATUM

For Class 99—60 see:
Patent No. 3,810,415

3,810,766

METHOD OF EXTRACTING ROASTED COFFEE

Irving Holzberg, Spring Valley, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,776
Int. Cl. A23f *1/08*
U.S. Cl. 426—386 **7 Claims**

In a split-extraction percolation process a technique has been discovered to significantly increase the solids concentration of the secondary extract stream. A portion of the secondary extract stream is used as a feed stream to the most spent stage, followed by a heated water feed stream. In this manner, the solids content in the secondary extract stream can be increased more than 50% as compared to standard split extraction techniques.

3,810,767

FUNGICIDE

Paul Raff, Ludwigshafen, Wolfgang Reuther, Heidelberg, Harro Petersen, Frankenthal, and Ernest-Heinrich Pommer, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Original application Dec. 9, 1969, Ser. No. 883,639. Divided and this application Oct. 10, 1972, Ser. No. 295,943
Claims priority, application Germany, Dec. 31, 1968, P 18 17 579.6
Int. Cl. A01n *11/00;* **C09d** *5/14*
U.S. Cl. 106—15 AF **4 Claims**

A fungicide for protecting wood comprising an aqueous solution of an alkali metal hydroxide, a metal hydroxide forming hydroxo anions, and an alkali metal salt or ammonium salt of N-nitroso - N - cyclohexylhydroxylamine, and a process for protecting wood against fungus attack by treatment with this fungicide.

3,810,768

REFRACTORY COMPOSITION COMPRISING COARSE PARTICLES OF CLAY OR BAUXITE AND CARBON

Joseph R. Parsons, Park Forest, and Harold L. Rechter, Chicago, Ill., assignors to Chicago Fire Brick Company, Chicago, Ill.

Filed Apr. 6, 1972, Ser. No. 241,785
Int. Cl. C04b *35/52*
U.S. Cl. 106—56 **1 Claim**

A refractory composition suitable for ramming monolithic refractory linings such as for cupolas and blast furnaces comprises coarse particles of calcined clay or calcined bauxite and coarse particles of amorphous carbon or graphite with plastic clay; and may also include particles of silicon or ferrosilicon, pitch and green binders. The particle size of the calcined clay, bauxite and carbon is such that at least 30 percent of said material has a grain size from 30 mesh to 1½ inches diameter, and preferably at least 60 percent from 30 mesh to ¼ inch diameter. In such compositions the carbon is protected at elevated temperatures such as 1600° F.–2600° F.

3,810,769

COMPOSITIONS OF COMPLEX PHOSPHATES OF ALUMINIUM

John Geoffrey Blacker, Harrogate, and James Derek Birchall and John Edward Cassidy, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 29, 1971, Ser. No. 203,032
Int. Cl. C08f *29/30;* **C08h** *7/00, 11/00*
U.S. Cl. 106—135 **9 Claims**

Compositions comprising complex phosphates of aluminium containing a halogen and chemically-bound molecules of a hydroxy compound, which may be water or

an organic hydroxy compound, certain organic polymers and a solvent system. A typical composition comprises aluminium chlorophosphate ethanolate and polyvinyl butyral dissolved in a mixture of methanol and chloroform. The compositions are especially useful as coatings for substrates as they decompose on heating at low temperatures to form films of aluminium phosphate and an organic polymer.

3,810,770

TITANIUM OR TANTALUM BASE ELECTRODES WITH APPLIED TITANIUM OR TANTALUM OXIDE FACE ACTIVATED WITH NOBLE METALS OR NOBLE METAL OXIDES

Giuseppe Bianchi, Piazzale Libia 1, Milan, Italy; Vittorio De Nora, Sandringan House, Nassau, Bahama Islands; and Patrizio Gallone, Via Previati 10; and Antonio Nidola, Via MacMahon 83, both of Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 690,407, Dec. 14, 1967, now Patent No. 3,616,445. This application June 22, 1971, Ser. No. 155,644

Int. Cl. C08h *17/24*

U.S. Cl. 106—286 **6 Claims**

Describes a valve metal, preferably titanium or tantalum, base electrode having a protective and electrocatalytic layer applied to the faces exposed to the electrolyte, said protective and electrocatalytic layer consisting of mixtures of solid solutions of valve metal oxides and platinum group and noble metals as such or in the form of oxides and/or oxyhalogenides and to novel coating compositions.

3,810,771

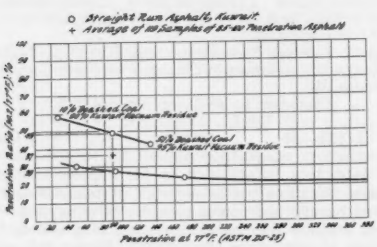
ASPHALT COMPOSITIONS

Harold Beuther, Gibsonia, and Alfred M. Henke, Springdale, Pa., assignors to Gulf Research & Development, Pittsburgh, Pa.

Continuation of abandoned application Ser. No. 597,792, Nov. 29, 1966. This application June 15, 1970, Ser. No. 48,885

Int. Cl. C10c *3/08;* **C08h** *13/00, 17/22*

U.S. Cl. 106—278 **7 Claims**


Straight Run Asphalt, Kuwait
Average of 18 Samples of 85-100 Penetration Asphalt
10% Blended Coal
90% Kuwait Vacuum Residue
10% Blended Coal
90% Kuwait Vacuum Residue
Penetration at 77°F. (ASTM D5-61)

An improved asphalt paving composition is obtained by adding to a petroleum asphalt coal which has been solvent treated in the presence of hydrogen.

3,810,772

FLUOROCHEMICAL COMPOSITIONS FOR ORGANOPHOBIC SIZING OF PAPER PRODUCTS

Melville Willard Uffner, Media, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Continuation-in-part of application Ser. No. 163,417, July 16, 1971, now Patent No. 3,736,164. This application July 21, 1972, Ser. No. 273,980

Int. Cl. C09k *3/00, 3/18*

U.S. Cl. 106—287 R **22 Claims**

Improved fluorine-containing phosphate compositions provide enhanced oil and grease resistant properties to cellulosic substrates. Fluorochemicals like polyfluorocycloalkyl phosphates when applied in combination with solvents, surfactants, chelating agents and/or alkali produce a complexing of metallic ions and a wetting effect of cellulosic fibrous bodies thereby enhancing their oleophobic properties. Such compositions are particularly adaptable for economical application to cellulosic stocks which have been previously sized.

3,810,773

STRONG LIGHT WEIGHT, BONDED, POROUS AGGREGATE

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,352

Int. Cl. C08h *17/04*

U.S. Cl. 106—288 B **17 Claims**

A method of bonding light weight porous particles of an aggregate bonded together by a binder that has been made into the form of a gel. The gelatinous binder is mixed with the porous particles so that the gel coats the surface of the particles without appreciably penetrating the pores of the aggregate. Upon curing of the gel coated porous particles, the porous particles are bonded together by surface bonds without any appreciable filling of the pores of the aggregate. The resulting bonded aggregate is strong and light weight, and can be used as a thermal insulation.

ERRATUM

For Class 117—161 see:
Patent No. 3,810,276

3,810,774

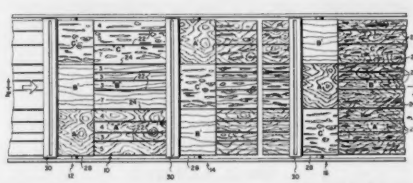
MULTI-COLOR, MULTI-PATTERNED PANELS

Raymond H. Pittman, Batavia, Ill., assignor to Masonite Corporation, Chicago, Ill.

Filed Apr. 17, 1972, Ser. No. 244,623

Int. Cl. B41c *1/20;* **B44d** *1/12, 1/46*

U.S. Cl. 117—12 **6 Claims**



Wall panel and method of making the same of thin sheet material having a decorative outer surface resembling actual wood planks laid side by side comprising the steps of printing segments of said surface with first, second and third patterns in a first color; printing different segments of said surface with different portions of said first, second and third patterns in a second different color; and printing different segments of said surface with again different portions of said first, second and third patterns in a third different color whereby planks of the whole pattern of said decorative outer surface are printed in successive layers with different patterns of different colors.

3,810,775

PROCESS FOR MAKING FIBROUS MATERIAL WATER-REPELLENT

Klaus Uhl, Hofheim, Taunus, and Klaus Fischer, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt, Germany

No Drawing. Filed Jan. 12, 1972, Ser. No. 217,272

Claims priority, application Germany, Jan. 15, 1971, P 21 01 816.6

Int. Cl. B44d *1/094, 1/44;* **D06m** *15/66*

U.S. Cl. 117—21 **9 Claims**

Copolymers of ethylene and vinylsilanes containing halogen atoms or lower alkoxy groups are useful as water-

repellent agents. A preferred application of said copolymers is the impregnation of fibrous materials with solutions in organic solvents, followed by a heat treatment and a fixing process with water or steam.

3,810,776

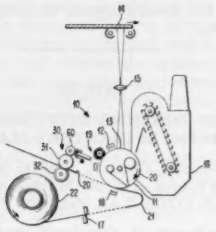
METHOD FOR PROVIDING A HEATER ROLL FUSER WITH IMPROVED RELEASE MATERIAL

Bobby R. Banks and Arthur E. Graham, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,774

Int. Cl. G03g *13/20, 15/20*

U.S. Cl. 117—21 8 Claims



Offset of toner to a heated fusing roll is prevented by coating the fusing roll with an adhesion preventing layer of an immiscible dispersion of a high viscosity, low surface tension component such as zinc or aluminum stearate or behenate and low viscosity, low surface tension component such as 50 cs. silicone oil.

3,810,777

COATINGS HAVING HIGH SOLAR ABSORPTANCE TO INFRARED EMITTANCE RATIOS

Carl P. Boebel, Akron, and Gary E. Stevenson, Xenia, Ohio, assignors to the United States of America as represented by the Secretary of the United States Air Force

No Drawing. Continuation-in-part of abandoned application Ser. No. 28,138, Apr. 13, 1970. This application Mar. 23, 1972, Ser. No. 237,494

The portion of the term of the patent subsequent to Apr. 4, 1989, has been disclaimed

Int. Cl. B44d *5/06;* G02b *5/20*

U.S. Cl. 117—33.3 3 Claims

A formulation providing coatings having high solar absorptance to infrared emittance ratios comprises oxidized copper flakes, a polymeric binder and a solvent for the binder. The oxidized copper flakes may be prepared by heating in an oxygen containing atmosphere prior to the inclusion in the coating formulation. Optionally, copper flakes may be dispersed in the coating formulation followed by applying the formulation to the substrate to be coated followed by curing of the polymeric binder. Then the copper flakes embedded in the binder may be oxidized by heating the coated substrate in an oxygen containing atmosphere. The formulation is particularly useful for coating surfaces of missile and spacecraft structures where thermal balance is of prime importance. In general, the coated surfaces have a solar absorptance to infrared emittance ratio ranging from 1.80 to 2.60.

3,810,778

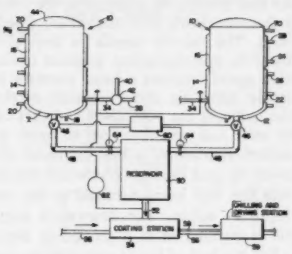
METHOD FOR PRODUCTION OF A PHOTOGRAPHIC FILM

David Wang, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 3, 1971, Ser. No. 139,598

Int. Cl. G03c *1/74*

U.S. Cl. 117—34 5 Claims



Consistent sensitometry of a batch of photographic film comprising a photosensitive emulsion coated onto a substrate is maintained by substantially continuously melting a mass of a gelled photosensitive emulsion at a rate equivalent to its deposition rate upon the substrate.

3,810,779

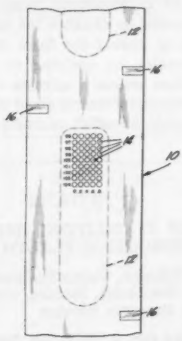
METHOD AND APPARATUS FOR DEPOSITING PRECISELY METERED QUANTITIES OF LIQUID ON A SURFACE

Charles G. Pickett, Andover, and James V. Molnar, Hopatcong, N.J., assignors to Bio-Medical Sciences Inc., Fairfield, N.J.

Filed June 7, 1971, Ser. No. 150,309

Int. Cl. B44d *1/02*

U.S. Cl. 117—37 14 Claims



A method and apparatus are disclosed for depositing precisely metered quantities of a liquid on a plate or like surface. A tubular needle is positioned vertically in a non-deposition position above the surface on which deposition is to be effected, and a pool of the liquid is main-

tained a distance above the plate, the surface level of the pool being spaced at or slightly below the level of the lower tip end of the needle with the liquid in the pool being communicated to the needle through a suitable conduit. Due to the relative location or points of elevation of the lower tip end of the needle in such non-deposition position and the pool surface, no head pressure is exerted in the liquid at the needle lower tip end which would tend to cause outflow of liquid from the needle. Further, backflow of liquid from the needle and conduit to the pool is resisted by capillary action in the liquid due to the size of the needle and conduit in relation to the viscosity of the liquid so that the needle and conduit are filled with liquid at all times. The tubular needle is then stroked downwardly from its non-deposition position toward the plate at a certain speed creating a head pressure in the liquid at the needle lower tip end by reason of the increasing differential between the pool level and that of the needle lower tip end, and causing, due to head pressure and kinetic action, creation of a ball of liquid of certain size at the lower tip end during downward movement of the needle with the ball being retained at the lower tip end due to capillary action. The downward displacement of the needle is terminated in a second or deposit position thereof when the ball of liquid contacts the plate on which deposition is to take place, and the adhesive attraction of the plate draws the ball of liquid from the needle tip whereupon the needle is retracted upwardly to its first position leaving deposited on the plate a precisely metered quantity of liquid. Apparatus for depositing the liquid on the plate in a plurality of separate deposits in a suitable matrix arrangement also is disclosed.

3,810,780

CARBONACEOUS COATING FOR CARBON FOAM

Zane L. Ardary, Kingston, and Virgil B. Campbell and Carl D. Reynolds, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Feb. 8, 1972, Ser. No. 224,601

Int. Cl. B44d *1/44;* C01b *31/02*
U.S. Cl. 117—46 CB **2 Claims**

An improved carbonaceous coating for carbon foam articles is provided to enhance the structural integrity of the foam and to protect the foam during handling. The coating is provided by applying to exposed surfaces of the carbon foam article a mixture of colloidal graphite and a dissolved thermosetting alkyd resin, drying the coating mixture, and thereafter carbonizing the resin.

3,810,781

METHOD OF STABILIZING HEPARINIZED NON-THROMBOGENIC PLASTIC SURFACES

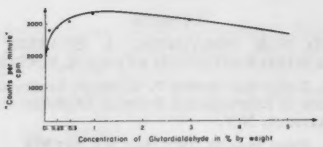
Jan Christer Eriksson, Vastra Frolunda, and Hans Ragnar Lagergren, Stockholm, Sweden, assignors to Aminkemi Aktiebolag, Bromma, Sweden

Filed Oct. 4, 1971, Ser. No. 185,954

Claims priority, application Sweden, Oct. 5, 1970, 13,458/70; Apr. 7, 1971, 4,506/71

Int. Cl. A61f *1/00;* A61k *17/18;* B44d *1/44*
U.S. Cl. 117—47 A **17 Claims**

A method for stabilizing heparinized plastic surfaces which previously have been made non-thrombogenic by bonding or heparin to surface-bonded cationic groups, by treating such heparinized surfaces with a dilute aqueous



solution of a dialdehyde having 0–4 and preferably 3 CH_2 groups between the two aldehyde groups, thereby to cross-link the bonded heparin molecules to each other.

3,810,782

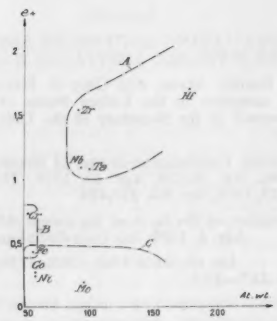
PROCESS OF FORMING DIFFUSION ALLOYS ON METALLIC REFRACTORY MATERIALS

Philippe Galmiche, Clamart, France, assignor to Office National d'Etudes et de Recherches Aerospatiales (par Abreviation: O.N.E.R.A.), Bagneux, France

Continuation-in-part of abandoned application Ser. No. 709,791, Mar. 1, 1968. This application Mar. 1, 1972, Ser. No. 230,922

Claims priority, application France, Sept. 19, 1967, 121,522

Int. Cl. C23c *9/02*
U.S. Cl. 117—107.2 P **8 Claims**



This invention is directed to a process of forming a diffusion alloy of a selected addiiton metal, such as tantalum, on any one or more different metallic refractory materials. The process is effected through the use of a reactive mass containing an inert powdered diluent, an alloy powder and a halogen or halogen-containing constituent. The same reactive mass may be used to treat any or all of the group of different metallic refractory materials. The alloy powder contains the desired addition metal a, moderator metal such as nickel or cobalt and a regulator metal such as chromium.

3,810,783

REMOISTENABLE, PREPASTED WALL COVERING AND METHOD OF MAKING

William A. Bomball, Decatur, Ill., assignor to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed May 5, 1972, Ser. No. 250,772
Int. Cl. C09j 7/02
U.S. Cl. 117—122 S 9 Claims

A starch-based remoistenable prepasted wallcovering adhesive comprising starch, methyl ether of cellulose, coating clay, hydrolyzed polyvinyl alcohol, monobasic sodium phosphate, wax, small amounts of a suitable fungicide, and a crosslinking agent such as glyoxal. Optionally, polyvinyl acetate can be added to increase adhesive strength when needed. This adhesive compound is easily adapted to rapid aqueous coating procedures for application to the reverse side of wallcoverings, such as cloth-backed vinyl material, and the adhesive coating so obtained has excellent resistance to adhesive loss during the long soaking of the coated wallcovering stock in either high or low hardness water. In addition, the wallcovering remains slippable while wet for an adequate length of time to allow positioning on the wall, and it can easily be stripped from the wall without the application of steam, or the need for other time consuming stripping methods. Traditional wallcoverings such as wallpapers, and many more recently developed wallcoverings can be used in combination with the remoistenable adhesive of this invention to take full advantage of the convenient application technique made possible. "Wall" as used here includes any substrate surface which is to be covered, including billboards, ceilings, cabinets, and chests.

3,810,784

REVERSIBLE SHEAR THINNING GEL COATED GLASS FIBER STRAND

Robert Wong, Granville, and Homer G. Hill, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation

Application Oct. 9, 1969, Ser. No. 871,098, which is a division of application Ser. No. 762,435, Sept. 25, 1968, now Patent No. 3,533,768. Divided and this application Nov. 1, 1971, Ser. No. 194,463
Int. Cl. C03c 25/02; D02g 3/18
U.S. Cl. 117—126 GE 19 Claims

A strand of fibers, and particularly glass fibers, comprising a bundle of the fibers arranged in generally side-by-side engagement with the individual fibers of the bundle being surrounded by a shear thinning gel which protects the fibers from mutual abrasion. The gel can be of any film former and preferred materials comprise a gel of a curable resin that is compatible with a later applied matrix resin.

3,810,785

CARBON FIBER COMPOSITE STRUCTURES

Christopher John Dominic and Edward William Garnish, Saffron Walden, England, assignors to Ciba (A.R.L.) Limited, Duxford, Cambridge, England

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,219
Claims priority, application Great Britain, Sept. 9, 1969, 44,579/69
Int. Cl. B32b 27/04, 27/12
U.S. Cl. 117—161 ZB 19 Claims

Process for making composite structures which comprises impregnating carbon fibres with a solution in an organic solvent of:

(a) a mixture of triglycidyl isocyanurate and an epoxide-containing adduct, prepared by heating together in the liquid state triglycidyl isocyanurate with a stoichiometric deficit, calculated on the basis of one amino hydrogen atom per epoxide group, of an aromatic primary amine containing not more than two hydrogen atoms directly attached to nitrogen, and

(b) a curing agent in a quantity sufficient to cure the mixture of triglycidyl isocyanurate and epoxide-containing adduct,

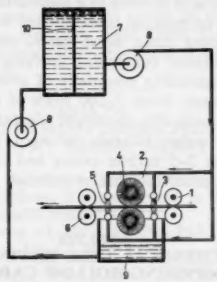
and then drying the impregnated fibres.

3,810,786

METHOD FOR CLEANING (DEGREASING) WEB MATERIAL

Boris Lindgren, Eskilstuna, Sweden, assignor to Nyby Bruks Aktiebolag, Nybybruk, Sweden

Filed Apr. 16, 1971, Ser. No. 134,742
Int. Cl. B08b 7/04
U.S. Cl. 134—9 8 Claims



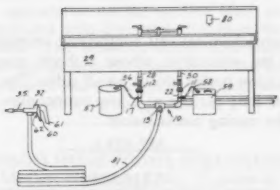
In degreasing steel articles an improvement in overall cost and in convenience is realized by displacing oily substances from the steel by the use of detergents having a hydrophobic balance of 10 and above, resulting in the formation of a labile emulsion.

3,810,787

METHOD FOR CLEANING AND SANITIZING FOOD HANDLING EQUIPMENT

Oded Yoeli, Atlanta, and Gerald W. Gibbs, Lawrenceville, Ga., assignors to Consolidated Foods Corporation, Atlanta, Ga.

Filed Apr. 13, 1972, Ser. No. 243,778
Int. Cl. B08b 3/02, 3/08
U.S. Cl. 134—29 3 Claims



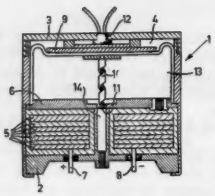
A method and apparatus for cleaning and sanitizing food preparation equipment by cleaning the equipment by means of spraying a mixture of hot water and cleaning agent and then sanitizing the equipment by spraying a mixture of cold water and sanitizing agent. The apparatus comprises a pair of branch conduits for connection to a source of hot water and source of cold water to a single outlet which is connected by a flexible hose or

conduit to a spray nozzle. Each of the branch conduits has a valve for controlling flow in the conduit and an injector for injecting the agent into the water flowing through the branch conduits to the spray nozzle which has a central valve for shutting off the spray.

3,810,788
METHOD FOR DECONTAMINATING CHEMICAL WARFARE AGENTS
Paul R. Steyermark, 10801 Cavalier Drive, Silver Spring, Md. 20901
No Drawing. Original application Feb. 15, 1966, Ser. No. 529,174. Divided and this application June 3, 1968, Ser. No. 763,994
Int. Cl. B08b *7/00*
U.S. Cl. 134—42 **7 Claims**

This invention is directed to a process for decontaminating a surface or material contaminated with mustard gas, nitrogen mustard gases, nerve gases, and organic phosphorus insecticides, comprising applying an excess of a composition consisting essentially of about 0.05–5 moles of a strong base, about 3–100 parts of dimethyl sulfoxide and 0–70 parts of a co-solvent selected from the group consisting of water, alkanols having 1–5 carbon atoms, glycols having 2–5 carbon atoms and triols having 3–5 carbon atoms to such surface or material.

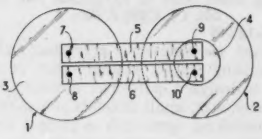
3,810,789
ELECTROCHEMICAL CELL HAVING CATHODE MASS COMPRISING HOLLOW CARBON BODIES
Cornelis Geerhard Vermeulen and Joris Jan Cornelis Oomen, Emmansingel, Eindhoven, Netherlands
Filed June 30, 1972, Ser. No. 268,210
Claims priority, application Netherlands, July 3, 1971, 7109225
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 LN **5 Claims**



An electrochemical cell comprising ammonia as a solvent for the electrolyte whose cathode mass comprises hollow carbon bodies closed on all sides. The cell may be loaded for long periods at a low temperature without the E.M.F. decreasing considerably.

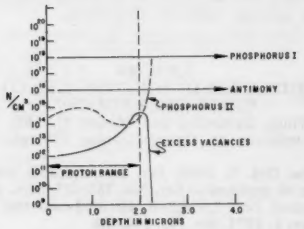
3,810,790
METHOD OF EFFECTING ELECTRIC CONNECTION
Henri Denis, Saint-Brice-sous-Foret, France, assignor to Saft-Societe des Accumulateurs, Fixes et de Traction
Filed Feb. 17, 1972, Ser. No. 227,071
Claims priority, application France, Feb. 19, 1971, 7105770
Int. Cl. H01m *5/00*
U.S. Cl. 136—134 P **2 Claims**

Method for effecting electrical connection by electrical welding, according to which at least the portion of the connection to be welded to a part is in the form of two substantially paralled strips which are preferably close to each other and wherein each of the two electrodes of the



welding apparatus is applied, during welding, respectively to one of said strips.

3,810,791
PROCESS FOR THE FABRICATION OF SEMICONDUCTOR MATERIALS
Don Leslie Kendall, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 3, 1970, Ser. No. 60,483
Int. Cl. H01l *7/54*
U.S. Cl. 148—1.5 **8 Claims**



A semiconductor wafer having a simulated epitaxial layer is produced by proton-enhanced out-diffusion. For example, a silicon wafer uniformly doped with 10^{16} atoms per cm.^{3} antimony and 10^{18} atoms per cm.^{3} of phosphorus is subjected to proton bombardment whereby a substantial portion of the phosphorous dopant is selectively removed from a surface layer. This produces a simulated epitaxial layer wherein the resistivity is determined by the initial concentration of antimony, while the resistivity of the substrate is determined by the initial concentration of phosphorus.

3,810,792
PROCESS FOR THE APPLICATION OF PHOSPHATE COATINGS ON STEEL, IRON AND ZINC SURFACES
Christian Ries, Cologne-Kalk, and Margot Prymak, Cologne, Germany, assignors to Gerhard Collarden GmbH
No Drawing. Filed Dec. 21, 1971, Ser. No. 210,539
Claims priority, application Germany, Jan. 2, 1971, P 21 00 021.5
Int. Cl. C23f *7/10*
U.S. Cl. 148—6.15 Z **4 Claims**

An improvement in the process for the application of phosphate coatings on steel, iron and zinc surfaces comprising contacting steel, iron and zinc surfaces with an acidic solution containing layer-forming cations, phosphate

ions, fluoride ions and oxidizing agents for a time sufficient to effect phosphatizing and recovering said phosphatized surfaces. The improvement resides in utilizing from 59 to 100 mol percent of nickel cations as said layer-forming cations in combinations with from 0 to 41 mol percent of other known divalent layer-forming cations. The invention also resides in the acidic phosphatizing solutions.

3,810,793

PROCESS OF MANUFACTURING A REINFORCING BAR STEEL FOR PRESTRESSED CONCRETE

Wilhelm Heller, Rheinhausen, Germany, assignor to Firma Fried. Krupp Huttenwerke A.G., Bochum, Germany

No Drawing. Filed June 20, 1972, Ser. No. 264,669
Claims priority, application Germany, June 24, 1971, P 21 31 318.8
Int. Cl. C21d *7/02, 7/14*
U.S. Cl. 148—12 **13 Claims**

A process for manufacturing an unannealed reinforcing bar steel for prestressed concrete which comprises subjecting a steel having a composition of:

0.20–0.35 weight percent carbon
0.20–2.50 weight percent silicon
0.50–3.50 weight percent manganese
1.25–4.50 weight percent chromium
(Mn+Cr)=2.75–5.00 weight percent,

the balance consisting essentially of iron by cooling it in quiet air from the hot-rolled state with the formation of bainite structure and, thereafter, either cold deforming it plastically without essential increase of tensile strength and tempering the same at a temperature in the range of 100 to 400° C. or tempering it in the temperature range between 150 and 550° C.

3,810,794

PREPARATION OF GaP-Si HETEROJUNCTION BY LIQUID PHASE EPITAXY

George A. Antypas, Mountain View, Ferenc E. Rosztoczy, Las Altos, William W. Stein, Palo Alto, and Sigmund von Szeremy, San Carlos, Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Sept. 24, 1970, Ser. No. 75,001
Int. Cl. H01l *7/38*
U.S. Cl. 148—172 **9 Claims**

A saturated molten solution of GaP and Si in a suitable solvent (Pb, Sn) was prepared. The molten, saturated solution was brought into contact with a Si single crystal substrate and cooled, causing the GaP to form an epitaxial layer on the Si surface. The crystal lattice structure and dimensions of Si and GaP crystals are very similar. The preferred physical properties of the solvent are: a relatively high solubility for GaP; a relatively low solubility for Si; and a relatively low solubility of the selected solvent in the epitaxially grown GaP.

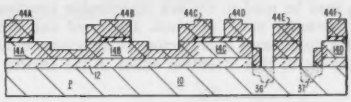
3,810,795

METHOD FOR MAKING SELF-ALIGNING STRUCTURE FOR CHARGE-COUPLED AND BUCKET BRIGADE DEVICES

Ronald Roy Troutman, Essex Junction, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,860
Int. Cl. H01l *7/34*
U.S. Cl. 148—187 **12 Claims**

Interconnected, but self-isolating conductive lines on different levels are achieved on monolithic integrated semiconductor devices. Layers of insulating semiconductor material are separated in selected areas by deposits of a dielectric diffusion barrier material and dopants to render the layers conductive are diffused therein. The deposits of the buried barrier material act as a diffusion mask as to prevent the diffused dopants from penetrating into selected areas of the underlying semiconductor body to leave in the underlying semiconductive layer a non-conductive region. This causes portions of the layers of insulating material to be rendered conductive, while still maintaining their insulating characteristics in selected regions, thereby electrically separating the layers one from



another in selected areas. Critical alignments between masks and subsequent diffusions are avoided. The method of the invention may be used to create all types of semiconductor devices, especially Field Effect Transistors and charge-coupled devices either separately or simultaneously on the same body.

3,810,796

METHOD OF FORMING DIELECTRICALLY ISOLATED SILICON DIODE ARRAY VIDICON TARGET

Frank L. Skaggs and Victor Harrap, Dallas, and Kenneth E. Bean, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 31, 1972, Ser. No. 285,156
Int. Cl. H01l *7/50*
U.S. Cl. 156—8 **12 Claims**

The disclosure relates to a dielectrically isolated silicon diode array vidicon target which substantially eliminates the lateral diffusion spread of photo carriers, thereby providing a non-blooming camera pickup tube.

3,810,797

ALUMINUM ETCH BATH ADDITIVE

Eugene Schaffstall, Chamblee, and Ira J. Duncan, Atlanta, Ga., assignors to Consolidated Foods Corporation, Chicago, Ill.

No Drawing. Filed Apr. 10, 1972, Ser. No. 242,752
Int. Cl. C23f *1/00*
U.S. Cl. 156—22 **16 Claims**

The process for etching aluminum using a caustic soda bath utilizing peroxide compound as an additive to reduce the adverse appearance on the surface after viscosity of the bath associated with dissolved aluminum has reached a certain level. The peroxide compound additives are water-soluble and include hydrogen peroxide, hydrates of hydrogen peroxide, and alkali metal and ammonium salts of perborate, percarbonate and persulfate.

3,810,798

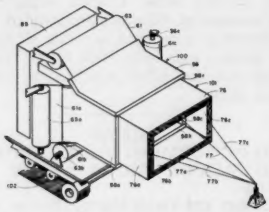
RANDOM HONEYCOMB STRUCTURE

Wallace W. McCoy, Glendale, Calif. (% John H. Wagner, Attorney at Law, 1041 E. Green St., Suite 202, Pasadena, Calif. 91101)

Original application Mar. 2, 1970, Ser. No. 15,364, now Patent No. 3,664,076. Divided and this application Apr. 7, 1972, Ser. No. 241,936
Int. Cl. B29j *1/02;* **B32b** *5/16, 31/06*
U.S. Cl. 156—62.2 **4 Claims**

This disclosure involves a form of prefabricated structure such as commercial or industrial buildings, houses or enclosures employing an external skin bonded to an intermediate structural and insulating filler with an inner surface skin similarly bonded to the filler material. The ex-

ternal skins are preferably resin bonded glass fiber and the intermediate filler composes a random honeycomb structure made of cellulosic material, such as individual pieces of paper of random size each rigidified and bonded to adjacent pieces by a resinous binder which is compatible with the binder of the skins. The structure is shown in continuous panels and actually three dimensional structure configurations as well as discrete structural elements which may be used to replace comparable structural elements normally made of wood. Disclosed also are processes for continuous manufacture of structures employing the concept of this invention either in the factory or on site.



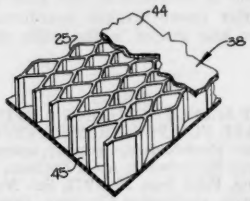
The same basic structure is shown in various configurations. Illustrated are a number of panel sections employing the same structure arrangement but different filler density whereby the load bearing strength of the panel may be controlled and its insulating properties varied as well. Structural strength can also be varied by changing the dimensions and concentrations of resin/figerglass of either or both external skin surfaces. Disclosed also are individual structural elements produced from waste paper material and resin bonded skins.

3,810,799
METHOD OF PREPARING POLYETHYLENE PARTS FOR ULTRASONIC WELDING
Horst Rager, Nuremberg, Herbert Rohrig, Schwarzenbruck-Gsteinach, and Armin Hirschel, Fischbach, Germany, assignors to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
Filed Apr. 5, 1972, Ser. No. 241,348
Claims priority, application Germany, Apr. 6, 1971, P 21 16 656.3
Int. Cl. B32b *31/30*
U.S. Cl. 156—73 **2 Claims**

Method of making plastic components, extruding a mixture of 100 parts PE and of 20 to 70 parts chalk and joining the extruded parts by means of ultrasonic energy.

3,810,800
METHOD OF PRODUCING LAMINATED STOCK MATERIALS AND PRODUCTS
Martin Doll, Patterson, N.C., assignor to Cellu Products Company, Patterson, N.C.
Original application Sept. 30, 1969, Ser. No. 862,252, now Patent No. 3,642,550, dated Feb. 15, 1972. Divided and this application Jan. 11, 1972, Ser. No. 216,939
Int. Cl. B32b *5/18*
U.S. Cl. 156—78 **6 Claims**

Liquid resistant shipping cartons and the like, and liquid resistant materials particularly adapted for construction of such cartons, are produced in accordance with a method wherein sheet thermoplastic material is formed into a foraminous web having openings therethrough perpendicular to opposing faces thereof and webs of paper



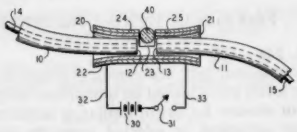
are adhered to the opposing faces of the thermoplastic material web.

3,810,801
METHOD FOR PATCHING MATERIALS SUCH AS PLASTIC
Lawrence Speer, Barbertown, N.J., assignor to Vinyltron Corp., Amsterdam, N.Y.
Filed Dec. 27, 1972, Ser. No. 319,029
Int. Cl. B32b *3/20*
U.S. Cl. 156—94 **6 Claims**

PLACE BACKING CLOTH WITH SOLVENT ABSORBING ADHESIVE COATING BEHIND DAMAGE
FILL DAMAGE WITH FILM FORMING MATERIAL IN A SOLVENT
COVER FILLED DAMAGE WITH GRAINING PAPER
APPLY PRESSURE
REMOVE PRESSURE AND GRAINING PAPER

A method for patching a damage in plastic and leather-like fabrics employs a special backing material for the damaged area. The special backing material causes the patching compound to gel in the presence of an embossing vinyl release paper covering the patch without the use of heat.

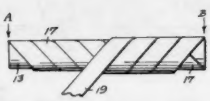
3,810,802
OPTICAL FIBER SPLICING DEVICE AND TECHNIQUE
Paul Harold Buhite, Millington, and Douglas Arthur Pinnow, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 31, 1972, Ser. No. 240,204
Int. Cl. B65h *69/02*
U.S. Cl. 156—158 **6 Claims**



A method and an apparatus are described for joining together single optical fibers under adverse environmental

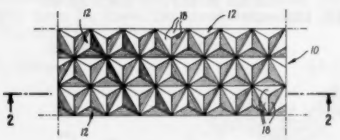
conditions. The fibers are aligned collinearly in a hollow sleeve, a quantity of low melting point transparent thermoplastic is inserted in the sleeve at the junction of the two fibers and heat is applied to melt the thermoplastic causing it to flow around the aligned ends thereby producing an optically efficient bond when the heat source is removed.

3,810,803
CONTINUOUS FIBER REINFORCEMENT, CROSS-PLY TEST SPECIMEN
Bernard L. Karp, Hampton, and Irving E. Figge, Newport News, Va., and Ernest B. Paxson, Jr., Provo, Utah, assignors to the United States of America as represented by the Secretary of the Army
Filed Nov. 5, 1971, Ser. No. 195,956
Int. Cl. B31c *1/00*
U.S. Cl. 156—190 **6 Claims**



A continuous fiber reinforcement cross-poly test specimen and method of fabrication, comprising the positioning of alternate plies of a unidirectional preimpregnated fiberglass tape on a mandrel at angles of ±45° orientation in relation to the axis of the specimen, and curing to obtain a continuous fiber specimen.

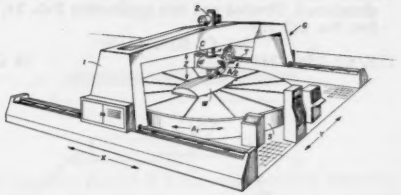
3,810,804
METHOD OF MAKING RETROREFLECTIVE MATERIAL
William P. Rowland, Southington, Conn., assignor to Rowland Development Corporation, Kensington, Conn.
Original application Sept. 29, 1970, Ser. No. 76,551, now Patent No. 3,684,348. Divided and this application Feb. 25, 1972, Ser. No. 229,378
Int. Cl. B29b *3/00*
U.S. Cl. 156—245 **13 Claims**



A composite retroreflective material is prepared by depositing on a molding surface having cube corner recesses a fluid molding material in an amount sufficient to fill those recesses. A preformed body member is applied thereto and the molding material is hardened and bonded to the body member. As a result, retroreflective material is provided with a body portion having one smooth surface and another surface from which project a multiplicity of separately formed, minute cube corner formations having a side edge dimension of less than 0.025 inch.

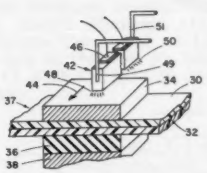
The cube corner formations may then have applied thereto a retroreflective coating, and an adhesive layer and release paper may be superposed thereon to permit facile mounting on a support surface.

3,810,805
GEODESIC PATH LENGTH COMPENSATOR FOR COMPOSITE-TAPE PLACEMENT HEAD
William B. Goldsworthy, Palos Verdes Estates, Harald E. Karlson, Santa Monica, and Ethridge E. Hardesty, Pine Valley, Calif., assignors to Goldsworthy Engineering, Inc., Los Angeles, Calif.
Filed Apr. 14, 1972, Ser. No. 244,187
Int. Cl. B32b *31/18*
U.S. Cl. 156—361 **14 Claims**



An integrally complete composite-tape placement head for direct attachment to a host gantry type of machine, which tape placement head is designed to precisely apply preimpregnated fiber reinforced tape to a work piece. The tape is initially supplied having a release paper forming a backing for the same. The tape is automatically peeled from the backing by a separator mechanism and thereafter applied to the work piece. A combination strand separation device and geodesic path length compensator is provided for applying the tape to curved surfaces without creating any buckling effects.

3,810,806
THERMOPLASTIC HEAT SEALING APPARATUS
Henry D. Swartz, 19 Mayflower Road, Chestnut Hill, Mass. 02167
Continuation-in-part of application Ser. No. 156,865, June 25, 1971, now Patent No. 3,729,357. This application Apr. 13, 1972, Ser. No. 243,799
Int. Cl. B29c *19/02*
U.S. Cl. 156—380 **28 Claims**



A weld or seal joining two or more heat susceptible thermoplastic sheets is produced by interposing the thermoplastic sheets in superposition between a flexible release member and a resilient backing member to form a surface-contacting assembly, and sliding a horizontally moving elongated heater mass along its axis in contact with the flexible release member of the assembly to apply heat to the thermoplastic sheets while countered by the resilient backing member. The result is a weld which is essentially uniform in thickness across its width and which may have a thickness which approximates the sum of the

thicknesses of the sheets being welded. The weld may be broken periodically if desired. Apparatus for effecting this process and producing this product are disclosed.

3,810,807

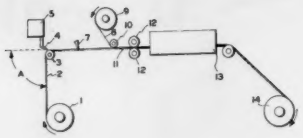
APPARATUS FOR BACKING TUFTED CARPET

Obie R. Jackson, Dalton, Ga., George R. Olson, Minnetonka, Minn., and Robert B. Putney, Kensington, Ga., assignors to Ashland Oil, Inc., Columbus, Ohio, and E. T. Barwick Mills, Inc., Chamble, and B & J Machinery Company, Inc., Dalton, Ga.

Original application Jan. 5, 1970, Ser. No. 600, now abandoned. Divided and this application Feb. 14, 1972, Ser. No. 225,759

Int. Cl. B29c *13/00*

U.S. Cl. 156—381 **10 Claims**



Tufted carpets are backed by applying adhesive to the back of the carpet while the carpet back is in a convex configuration and applying the backing material. Tufted carpets are also backed by applying the adhesive while the carpet back is straight or in a convex configuration, then applying the action of a doctor blade at a point where the adhesive-bearing carpet back is in a convex configuration and applying the backing material. Tufted carpets are further backed by applying the adhesive by extruding the adhesive into the carpet back and applying the backing material. This adhesive extrusion may be combined with either or both of the above methods. Apparatus is disclosed for each method.

3,810,808

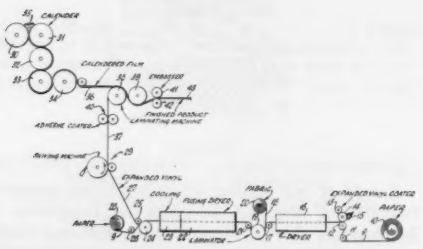
APPARATUS FOR MAKING PLASTIC SHEET MATERIAL

Albert E. Anderson, Norwich, Conn., assignor to Pervel Industries, Inc., Plainfield, Conn.

Original application Apr. 12, 1968, Ser. No. 721,002, now Patent No. 3,607,493. Divided and this application Sept. 16, 1971, Ser. No. 181,114

Int. Cl. B32b *3/00*

U.S. Cl. 156—389 **3 Claims**



The invention contemplates apparatus for manufacture of expanded-plastic sheet material, wherein an outer skin is removed by heat-skiving, to present a velvety texture. The apparatus uses a heated drum to impart a temperature gradient in the region of skin to be removed. The apparatus produces a product which is directly usable, or the product may be further processed to add a special outer skin. In the latter case, the heat-skiving function of the apparatus is found to impart richness to the "feel" of the product.

3,810,809

ARRANGEMENT FOR THE PRODUCTION OF CONNECTING POINTS BETWEEN SUPERIMPOSED WEBS, ESPECIALLY CONTINUOUS FORMS

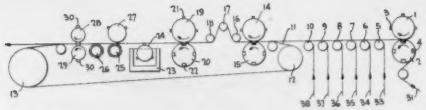
Josef Herd, Muenster, near Dieburg, and Hans Jakob, Darmstadt-Eberstadt, Germany, assignors to Maschinenfabrik Goebel GmbH, Darmstadt, Germany

Filed Mar. 15, 1972, Ser. No. 234,931

Claims priority, application Germany, Mar. 15, 1971, P 21 12 350.2

Int. Cl. B31f *5/02*; B32b *31/00*

U.S. Cl. 156—468 **5 Claims**



An arrangement for producing connection points between superimposed continuous webs wherein tongues are formed in the topmost web by a punching mechanism, aligned notches are provided in all the webs by another punching mechanism, the top web is shifted relative to the remaining webs by a deflector means in a manner to cause the tongues to overlie the notches, the tongues are pushed through the notches by a tongue pushing means, glue spots are applied to the lowermost web, and the pushed-through tongues are bent against the lowermost web against the glue spots by a bending means.

3,810,810

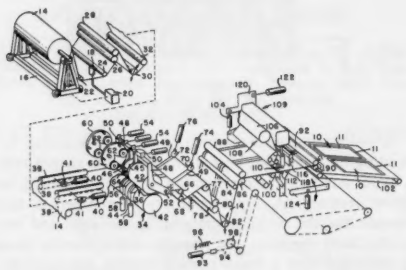
APPARATUS TO CONTINUOUSLY PROVIDE FABRIC WITH A HEAT SEALED SELVAGE

Don M. Bylund and Victor W. Kimble, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Original application June 20, 1969, Ser. No. 834,969. Divided and this application Oct. 20, 1970, Ser. No. 82,309

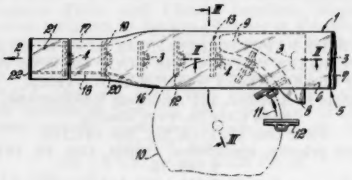
Int. Cl. B31f *5/00*; B32b *31/00*

U.S. Cl. 156—499 **3 Claims**



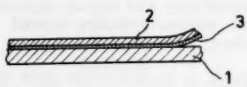
Machine and process to continously heat seal a strip of thermoplastic film material to a roll of textile material in the longitudinal direction thereof and sever said strip of thermoplastic film and said material to provide at least two widths of material with sealed edges to prevent unraveling.

3,810,811
APPARATUS FOR MAKING CARRIER BAGS HAVING PLASTIC HANDLES ATTACHED TO THE MOUTHS THEREOF
Frank Bosse, Ibbenburen-Dorenthe, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany
Filed June 17, 1971, Ser. No. 154,071
Claims priority, application Germany, June 24, 1970, P 20 31 305.7
Int. Cl. B32b 31/00
U.S. Cl. 156—516 10 Claims



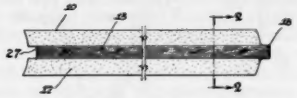
Apparatus for making carrier bags having plastic handles attached to the mouths thereof before bag lengths are severed from a tube of plastic bag material. The tube of bag material is flattened, open along one edge and fed lengthwise continuously as pairs of handles are successively inserted by rotary handle carriers between the plies of the tube through the open edge thereof to extend across the tube at intervals. Welding tools secure each pair of handles in position from outside the tube, whereafter the open tube edge is welded shut and the bag lengths are successively severed from the leading tube end along preformed scorelines passing through the positions of the attached handles. The bases of the bags are closed by welding after the severing operation. The pairs of handles are withdrawn from a magazine and inserted in the tube by carriers pivoted to a turntable. The welding tools move at the same speed as the tube during the welding operation and are supported by chains driven by a drive containing variable speed gearing.

3,810,812
COVERING MASK
Claus Koenig, 114 Paul-Gossen-Str., 852 Erlangen, Germany
Continuation-in-part of abandoned application Ser. No. 755,154, Aug. 26, 1968. This application July 12, 1971, Ser. No. 161,862
Int. Cl. B44f 1/06; G03c 7/20
U.S. Cl. 161—1 15 Claims



A mask for covering, for example images to be reproduced, comprises a transparent substrate, coated with a dimensionally stable thin sheet or film, for example, of synthetic material comprising light filtering tinting means and adapted for inscribing therein image countour outlining cuts, said coating being accomplished by slightly adhesive means which stick to the sheet or film rather than to the substrate upon removing cut surrounding portions of the sheet or film from the substrate. Especially for screen printing processes the sheet or film may be provided on one surface with said adhesive means and on the opposite surface thereof with a holding layer which is more adhesive than said slightly adhesive means.

3,810,813
CLOSURE-FORMING STRIP WITH AN ATTACHED TEAR STRIP STRUCTURE
Glenn Ellis, Montreal, Quebec, Canada, assignor to Sesame Industries Limited, Montreal, Quebec, Canada
Filed July 20, 1972, Ser. No. 273,659
Int. Cl. B32b 3/02; B65d 17/20, 65/34
U.S. Cl. 161—145 1 Claim

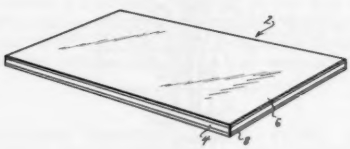


The invention resides in a tear strip structure wherein a conventional closure-forming strip gummed on one side has a tear tape adhesively bonded to the gummed side of the strip. The tear tape occupies a minor medial longitudinal section of the strip and is not adhesive at room temperature or when moistened.

3,810,814
ASYMMETRIC POLYMER MEMBRANES OF REDUCED ELASTIC MODULUS
Carlyle S. Herrick, Alplaus, and Allan R. Shultz, Scotia, N.Y., assignors to General Electric Company
Filed Dec. 18, 1972, Ser. No. 315,801
Int. Cl. B32b 5/18
U.S. Cl. 161—159 5 Claims

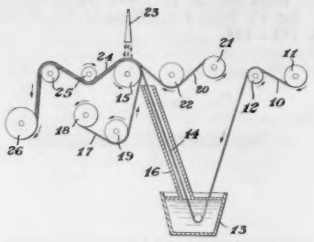
An improved method is disclosed for the manufacture of dry asymmetric membranes, which comprise a porous layer of interconnected crystals of polymer material and, integral therewith, a dense less crystalline surface layer forming one face of the membrane. Finely divided grafted elastomeric material compatible with the system is included in the casting solution and the completed membrane embodies the tiny elastomeric particles apparently uniformly distributed therethrough. The use of elastomeric particles having polystyrene chains grafted thereto is specifically described as being added for preparing asymmetric polyxylylene oxide membranes.

3,810,815
TRANSPARENT LAMINATE
Erwin K. Welhart, Florissant, David L. Voss, Chesterfield, and John F. Harrell, Florissant, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed July 10, 1969, Ser. No. 840,687
Int. Cl. B32b 27/18, 27/30, 31/20
U.S. Cl. 161—183 4 Claims



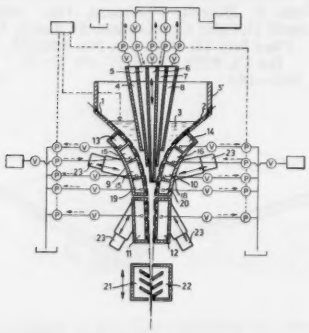
A transparent laminate is formed by diffusion bonding at least one layer of acrylic resin sheet to a layer of polycarbonate resin in the presence of heat and pressure so as to form a clad polycarbonate. The bonding may or may not be effected in an evacuated atmosphere.

3,810,816
PROCESS FOR MAKING REINFORCED RESIN LAMINATES OF UNIFORM THICKNESS
George Zachariades, Alvin, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Apr. 6, 1972, Ser. No. 241,698
Int. Cl. B32b *31/28*
U.S. Cl. 161—214 26 Claims



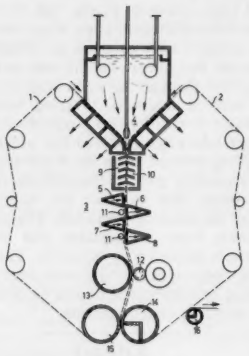
A fast, continuous process especially useful for making thin, flexible, electrical grade laminates is disclosed which comprises the steps of impregnating a fibrous substrate with certain polymerizable resin/monomer mixtures, applying sufficient pressure across the lateral width of the impregnated substrate to express entrapped air bubbles therefrom and to uniformly distribute the resin/monomer impregnant, and exposing the substrate in an inert atmosphere to a sufficient amount of ionizing radiation to polymerize the resin monomer mixtures. The laminates may be metal foil clad laminates or unclad.

3,810,817
TWIN-WIRE PAPERMAKING MACHINE WITH VIBRATORS CONNECTED TO SUCTION AND LIQUID DELIVERY BOXES LOCATED BENEATH THE CONVERGING WIRES
Hanns F. Arledter, 122 Andritzer Reichsstrasse, 8046 Graz St. Veit, Austria
Filed Oct. 26, 1971, Ser. No. 192,079
Claims priority, application Austria, Oct. 30, 1970, A 9,764/70
Int. Cl. B21f *1/00, 1/18*
U.S. Cl. 162—301 6 Claims



A twin-wire papermaking machine wherein separate foraminous wires converge towards one another while passing over separately controlled, convex domed suction boxes and thereafter join together to form the fibrous web therebetween as the wires pass over opposing foils. Between some of the separately controlled suction boxes are located liquid discharge boxes for injecting liquid into the fibrous suspension contained between the converging wires. Vibrators are connected to the suction and liquid discharge boxes for oscillation at an angle of between about 20 and 50 degrees to the plane of the wire passing thereover. Slurry passages (which may be oscillated also) are located beneath the slurry contained between the converging wires and function to deliver as well as remove slurry.

3,810,818
TWIN-WIRE PAPERMAKING MACHINE WITH SUCTION BOXES WITHIN THE LOOP OF ONE WIRE AND BLAST BOXES WITHIN THE OTHER
Hanns F. Arledter, 122 Andritzer Reichsstrasse, 8046 Graz St. Veit, Austria
Filed Oct. 26, 1971, Ser. No. 192,276
Claims priority, application Austria, Oct. 30, 1970, 9,763/70
Int. Cl. D21f *1/00, 1/52*
U.S. Cl. 162—301 13 Claims



A twin-wire papermaking machine which includes a dewatering and press section, the dewatering section employing suction boxes within the loop of one of the forming wires, and blast boxes within the loop of the other forming wire. The boxes have convex domes which cause the two wires to move in a serpentine configuration and are positioned to provide continuous support thereto. The dewatering section may also employ opposed foils, press cylinders, and suction cylinders located opposite to grooved cylinders.

3,810,819
ANTI-TUMOR SUBSTANCE FROM HEMOLYTIC STREPTOCOCCI AND PROCESS FOR PRODUCING THE SAME USING AMMONIUM SULFATE
Hajime Okamoto, Susumu Shoin, and Saburo Koshimura, Kanazawa, Japan, assignors to Hajime Okamoto, Kanazawa-shi, Japan
Filed Sept. 4, 1970, Ser. No. 69,774
Claims priority, application Japan, Sept. 6, 1969, 44/70,283
Int. Cl. C07g *7/00*
U.S. Cl. 195—4 22 Claims

Living cells of hemolytic streptococci are ground by a mechanical means or subjected to an enzyme treatment,

and are then centrifuged, whereby a supernatant solution is obtained. The thus obtained supernatant solution is subjected to salting out with ammonium sulfate, whereby a fraction, which will precipitate at 50–80% saturated ammonium sulfate concentration is obtained. If necessary, the thus obtained fraction is purified by making it contact with an ion exchanger, a gel filtering agent or calcium phosphate gel.

3,810,820
URATE OXIDASE AND PROCESS FOR THE PRODUCTION THEREOF

Pierre Laboureur, Neuilly-sur-Seine, Marcel Daniel Pierre Brunaud, Paris, and Claude Langlois, Montrouge, France, assignors to Societe d'Etudes et d'Applications Biochimiques, Yvelines, Etablissements Clin-Byla and Ugine-Kuhlmann, both of Paris, France

No Drawing. Continuation-in-part of application Ser. No. 715,623, Mar. 25, 1968, now Patent No. 3,620,923. This application Sept. 13, 1971, Ser. No. 180,220
Claims priority, application France, Mar. 29, 1967, 100,672, 100,673
Int. Cl. C07g *7/02*; C12d *13/10*
U.S. Cl. 195—62 **1 Claim**

The invention relates to a new enzyme or urate oxidase which is very active in promoting oxidation of uric acid to allantoin. The urate oxidase is produced by fermentation under aerobic conditions of nutrient media containing sources of assimilable carbon, assimilable nitrogen and uric acid which have been seeded with suitable cultures of bacteria, fungi or yeasts. Isolation and purification of the urate oxidase is described.

3,810,821
ENZYMES ATTACHED TO CELLULOSE CARBONATE

Sidney Alan Barker, John Frederick Kennedy, and Charles John Gray, Birmingham, England, assignors to Ranks Hovis McDougall Limited, London, England

No Drawing. Continuation-in-part of applications Ser. No. 95,414, Dec. 4, 1970, now abandoned, and Ser. No. 98,214, Dec. 14, 1970, now Patent No. 3,705,890. This application Dec. 7, 1972, Ser. No. 312,928
Claims priority, application Great Britain, Dec. 18, 1969, 61,701/69, 61,702/69
Int. Cl. C07g *7/02*
U.S. Cl. 195—63 **12 Claims**

Cellulose carbonate is prepared by reacting cellulose or a 6-substituted cellulose, e.g. methyl cellulose, hydroxyethyl cellulose, carboxymethyl cellulose and diethylaminoethyl with an alkyl or aryl chloroformate. Water-insoluble enzyme preparations are produced by reacting the enzyme, e.g. mouse kidney extract, β-glucosidase, trypsin, α-amylase, glucoamylase or mouse liver extract, dissolved or suspended in aqueous solution with the cellulose carbonate.

3,810,822
PROCESS FOR OBTAINING A PHOSPHODIESTERASE FROM DICTYOSTELIUM DISCOIDEUM

Günther Gerisch, Tubingen, Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Gottingen, Germany

No Drawing. Filed July 10, 1972, Ser. No. 269,960
Claims priority, application Germany, July 8, 1971, P 21 34 141.3
Int. Cl. C12d *13/10*
U.S. Cl. 195—65 **8 Claims**

New process for obtaining a highly active phosphodiesterase from the culture fluid of the mutant mold *Dictyostelium discoideum* aggr 75 by separating the protein therefrom.

3,810,823
METHOD FOR ISOLATION OF ENZYMES

Katsumi Fujii, Suita, Isamu Takagahara, Takatsuki, Yasuo Suzuki, Suita, and Takekazu Horio, Takatsuki, Japan, assignors to Oriental Yeast Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 20, 1971, Ser. No. 210,048
Claims priority, application Japan, Dec. 18, 1970, 45/113,028
Int. Cl. C07g *7/02*
U.S. Cl. 195—66 R **4 Claims**

The present invention relates to a method for isolation of enzymes, particularly a method for isolation of inorganic phosphate-dependent enzymes. The invention is based on the fact that inorganic phosphate-dependent enzymes are adsorbed on a water-insoluble carrier containing phosphoric acid group according to enzymatic affinity and they are eluted from the carrier if a substrate competitive with the inorganic phosphate is added. The method for isolation of inorganic phosphate-dependent enzymes of the present invention utilizes quantitative difference in enzymatic properties among various enzymes (i.e. specificities of enzymes). According to the method of the present invention, enzymes which have been difficultly purified according to conventional purification methods can be obtained in extremely high yields.

3,810,824
AQUEOUS ACID TIN-PLATING BATH

Donald Kearey Howard, Manchester, Brian Martin Thomas, Stockport, Cheshire, and Francis Popplewell, Manchester, England, and Dario Matossi, Pamplona, Spain, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Feb. 24, 1970, Ser. No. 13,766, now Patent No. 3,691,033. Divided and this application Aug. 10, 1972, Ser. No. 279,570
Claims priority, application Great Britain, Mar. 11, 1969, 12,804/69
Int. Cl. C23b *5/14, 5/46*
U.S. Cl. 204—54 R **9 Claims**

An aqueous acid tin-plating bath comprising a source of tin available for electro-plating, a source of hydrogen ions and an additive comprising from 0.0125% to 98.7% of 4,4'-di-(dimethylamino)-diphenylmethane and one or more tin-plating additives functionally active in an acidic tin-plating bath.

3,810,825
RESIN AND PROCESS FOR CURING BY EXPOSING TO IONIZING RADIATION A MIXTURE OF A VINYL ESTER RESIN, AN ALKENYL AROMATIC MONOMER AND A 2-OXAZOLINE OR GUANIDINE

Inder Mani, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 13, 1971, Ser. No. 143,266
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.15 **12 Claims**

The addition of at least about 0.3 weight percent of a 2-oxazoline, a guanidine or certain amines to a thermosettable mixture of an alkenyl aromatic monomer and a polymerizable vinyl ester resin reduces the dosage level of ionizing radiation required to cure the mixture.

3,810,826
RADIATION POLYMERIZABLE VINYL ESTER RESINS CONTAINING 2 - OXAZOLINE AND GUANIDINE ADDITIVES

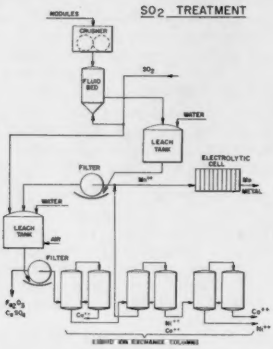
Inder Mani, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 13, 1971, Ser. No. 143,268
Int. Cl. C08d *1/00*; C08f *1/00*
U.S. Cl. 204—159.15 **11 Claims**

The addition of at least about 0.3 weight percent of a 2-oxazoline, a guanidine or certain amines to a thermo-

settable mixture of a nonvolatile vinyl monomer and a polymerizable vinyl ester resin reduces the dosage level of ionizing radiation required to cure the mixture.

3,810,827
METHOD FOR SEPARATING METAL VALUES FROM OCEAN FLOOR NODULE ORE
William S. Kane, Wicomic, and Paul H. Cardwell, Zanoni, Va., assignors to Deepsea Ventures, Inc.
Continuation-in-part of abandoned application Ser. No. 251,089, May 8, 1972, which is a continuation of application Ser. No. 40,586, May 26, 1970. This application Nov. 27, 1972, Ser. No. 309,713
Int. Cl. C22d *1/24, 1/14, 1/16*
U.S. Cl. 204—105 M **14 Claims**

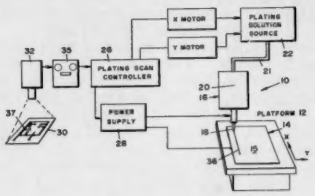


This invention provides a process for obtaining the metal values from ocean floor nodule ore. The ore comprises primarily oxides of iron and manganese plus nickel, copper and cobalt compounds. The ore is treated with an acidic reagent, e.g., SO_2, in the absence of oxygen, to form the water-soluble salt, e.g., the sulfate, of manganese, only. The ore is then leached with water to obtain a solution of the manganese salt, which may be further treated to obtain manganese metal. The ore residue can be further treated to extract the other metal values.

3,810,828
REFERENCE ELECTRODE
Alfons Seth Mikael Lindholm, Nol, Sweden, assignor to Aktiebolaget Tudor, Stockholm, Sweden
Filed Dec. 20, 1971, Ser. No. 210,082
Int. Cl. G01n *27/30*
U.S. Cl. 204—195 F **1 Claim**

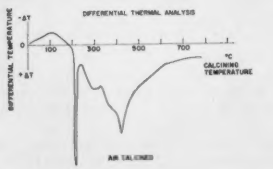
A reference electrode using cadmium metal for measuring the electrode potential in a lead-acid cell. The electrode is mounted in a cylindrical casing which has a porous plug at its lower end. Electrolyte in the cylindrical casing rapidly contacts the measurement solution (battery electrolyte) when the electrode housing is inserted through a fill cap opening in the cell housing.

3,810,829
SCANNING NOZZLE PLATING SYSTEM
James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Gerald D. Oliver, Altadena, Calif.
Filed June 28, 1972, Ser. No. 266,913
Int. Cl. B01k *3/00;* **B23p** *1/00*
U.S. Cl. 204—222 **9 Claims**



A plating system is disclosed wherein a substrate to be plated is supported on a stationary platform. A nozzle assembly with a small nozzle is supplied with a plating solution under high pressure, so that a constant-flow stream of solution is directed to the substrate. The nozzle assembly is moved relative to the substrate at a selected rate and movement pattern. A potential difference (voltage) is provided between the substrate and the solution in the assembly. The voltage amplitude is modulated so that only when the amplitude is above a minimum known value plating takes place.

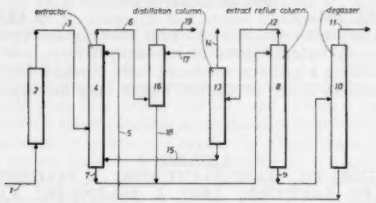
3,810,830
HYDOCRACKING AND HYDRODESULFURIZATION PROCESSES UTILIZING A SALT-CONTAINING NEUTRALIZED SILICA-ALUMINA SUPPORT CALCINED AT DIFFERENT TEMPERATURE RANGES
Jakob van Klinken, Herman Wouter Kouwenhoven, and Pieter Aldert van Weeren, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.
Original application Oct. 8, 1969, Ser. No. 864,707, now Patent No. 3,697,444, dated Oct. 10, 1972. Divided and this application June 2, 1972, Ser. No. 259,110
Int. Cl. C10g *13/02, 13/06, 23/02*
U.S. Cl. 208—111 **14 Claims**



Residual oils containing asphaltenes, large amounts of sulfur and/or heavy metals are hydrodesulfurized and/or hydrocracked in a process which utilizes a catalyst prepared by first neutralizing a calcined silica-alumina support with a nitrogen base, depositing a hydrogenation metal component on the support by contacting it with an alkaline salt solution of catalytically active metals,

then calcining the salt-containing support in an oxygen-containing gas at a temperature in the range of about 185–400° C., and finally calcining in an oxygen-containing gas at a temperature in the range of about 475–650° C. for at least about 1 hour. The oxygen content of the calcining gas and the first calcining time are regulated to avoid sintering the hydrogenation metal component.

3,810,831
PROCESS FOR RECOVERING CYCLOPENTENE AND CONJUGATED C_5-DIOLEFINS
Bernhard Schleppinghoff and Helmut Scherb, Dormagen, and Hans Puxbaumer, Cologne, Germany, assignors to Erdolchemie Gesellschaft mit beschrankter Haftung, Cologne, Germany
Filed July 12, 1972, Ser. No. 271,323
Claims priority, application Germany, July 21, 1971, P 21 36 495.4
Int. Cl. C07c *7/10*; C10g *21/20*
U.S. Cl. 208—321 **4 Claims**

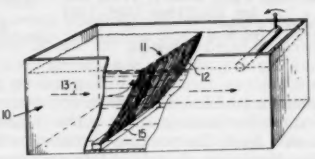


Conjugated C_5-diolefins and cyclopentene are recovered from a mixture of C_5–hydrocarbons containing unsaturated C_4-hydrocarbons by a process which includes the following steps:

(a) subjecting said mixture to liquid-liquid extraction;
(b) removing paraffins and mono-olefins as theraffinate of the liquid-liquid extraction;
(c) feeding the extract solution to an extract reflux column;
(d) subjecting the head product from the extract reflux column to distillation and removing C_4-hydrocarbons as the head fraction and returning the sump product to the liquid-liquid extraction step; and
(e) feeding the sump product from the extract reflux column to a degasser wherein C_5-diolefinic hydrocarbons and/or cyclopentene are removed as the head product and the sump product is returned to the liquid-liquid extraction step.

3,810,832
OIL/WATER SEPARATION ACCELERATION MEDIA
Herbert M. Rhodes, New Orleans, La., assignor to Oil Mop, Inc., New Orleans, La.
Filed June 1, 1972, Ser. No. 258,506
Int. Cl. B01d *17/02*; E02b *15/04*
U.S. Cl. 210—23 **6 Claims**

The present disclosure is directed to an apparatus for accelerating the separation of oil from an oil/water mixture to bring the oil to the surface over as short a linear distance as possible in a linear flow of a mixture of oil and water by directing the oil/water mixture through a barrier of filaments of polypropylene arranged across the path of mixture flow which barrier is anchored at its base at the bottom of the fluid confining means such as an API oil separator or a ditch or canal with the free ends of the strips of polypropylene directed upwardly forming an inclined plane up which the oil droplets amalgamate assisted by the buoyancy of the oil and the force flow vector of the mixture passing through the fluid confining means.



3,810,833
PURIFICATION PROCESSES
Thomas Nicklin, Rochdale, England, assignor to North Western Gas Board, Altrincham, Cheshire, England
No Drawing. Filed Aug. 24, 1972, Ser. No. 283,469
Claims priority, application Great Britain, Sept. 2, 1971, 40,875/71
Int. Cl. C02b *1/46, 1/60*
U.S. Cl. 210—32 **13 Claims**

An effluent purification process for removing vanadium salts, sodium anthraquinone disulphonates and di-hydroxyanthraquinones from effluent liquors which have been used in processes for removing hydrogen sulphide from fuel gases or liquid hydrocarbons comprises the slips of passing the liquor through an adsorbent bed to remove the anthraquinone compounds and through an ion exchange material to remove the vanadium compounds.

3,810,834
TREATMENT OF WATER OR AQUEOUS SYSTEMS
Thomas Ivor Jones, Poynton, Norman Richardson, Middleton, Manchester, and Arthur Harris, Poynton, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,628
Claims priority, application Great Britain, Nov. 30, 1970, 56,760/70
Int. Cl. C02b *5/06*
U.S. Cl. 210—58 **4 Claims**

Hydrolysed polymaleic anhydride is used for the treatment of water or aqueous systems containing dissolved salts of metals in order to cut down the rate at which insoluble salts are formed and to modify their nature.

3,810,835
PROCESS FOR TREATING OIL SLICKS USING CHEMICAL AGENTS
Richard L. Ferm, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed Feb. 25, 1971, Ser. No. 119,036
Int. Cl. C02b *9/02*
U.S. Cl. 210—59 **8 Claims**

A process for treating an oil slick to contain it and prevent its uncontrolled spreading comprising applying to open water areas in the vicinity of the oil spill a chemical agent which repulses the oil spill. By judicious application of the chemical agent, the oil slick can be gathered into a limited area which facilitates cleanup. The chemical agent is selected from the group consisting of (1) N,N-dialkyl amides; (2) n-alkyl and n-alkylene monoethers of (a) ethylene glycol and (b) polyethylene glycol, (3) polyethylene glycol monoesters of n-alkyl acids; and (4) n-alkyl and n-alkylene monoesters of propylene glycol.

3,810,836
NON-STAINING DRILL LUBRICANTS
James H. Norton, Lambton, Ontario, Canada, assignor to Esso Research and Engineering Company
No Drawing. Filed June 1, 1972, Ser. No. 258,826
Int. Cl. C10m *3/08, 3/32*
U.S. Cl. 252—8.5 C **6 Claims**

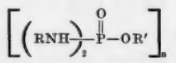
A mineral-oil-based lubricant for use in drilling of mineral ore deposits, which is non-staining towards sample cores withdrawn during the drilling, can be prepared by combining a paraffinic oil, with minor amounts of a nonionic emulsifier package and a sulfur-containing extreme pressure agent. The nonionic emulsifier package can be a combination of an alkoxylated fatty acid ester and an alkoxylated alkyl phenol or a combination of fatty acid sorbitan polyesters which have been alkoxylated to varying extents.

3,810,837
OVERBASED SULFURIZED CALCIUM ALKYLPHENOLATE MANUFACTURE
Harry Chafetz, Poughkeepsie, William H. Channing, Wappingers Falls, and Bertrand G. Morissette, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed June 27, 1972, Ser. No. 266,836
Int. Cl. C10m *1/54*
U.S. Cl. 252—42 F **5 Claims**

A method of preparing overbased sulfurized alkylphenolate of antioxidant properties in hydrocarbon lubricating oil comprising first heating a mixture of sulfurized normal calcium alkylphenolate, calcium oxide, alkanoic acid of from 2 to 3 carbons, alkoxyethanol of the formula $ROCH_2CH_2OH$ where R is alkyl of from 1 to 4 carbons, and lubricating oil and subsequently contacting the heated mixture with carbon dioxide.

3,810,838
OLIGOMERIC PHOSPHORODIAMIDATE
Haakon Haugen, Beacon, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 20, 1971, Ser. No. 210,238
Int. Cl. C10m *1/48*
U.S. Cl. 252—46.7 **2 Claims**

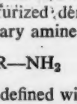
The manufacture of oligomeric phosphorodiamidate characterized by the formula:



where R is alkaryl of from 12 to 24 carbons, R′ is lower alkyl of from 2 to 6 carbons and *n* is an average integer of from 1 to 4 and sulfurized derivatives thereof comprising contacting a primary amine of the formula:

$$R—NH_2$$

where R is as heretofore defined with an alkyldihalophosphate characterized by the formula:



where R′ is as heretofore defined and X is a halogen selected from chlorine or bromine utilizing a mole ratio of amine to said phosphate of between about 1.7:1 and 2.3:1 in the absence of solvent and catalyst at a temperature between about 170 and 200° C. while continuously blowing the reaction mixture with an inert gas, recovering the oligomeric phosphorodiamidate product and optionally contacting said product with phosphorus pentasulfide utilizing a mole ratio of pentasulfide to product of between about 0.05:1 and 0.5:1 at a temperature between about 80 and 150° C. in the presence of an inert solvent while continuously blowing the reaction mixture with an inert gas and recovering the sulfurized phosphorodiamidate reaction product. Both the phosphorodiamidate product and sulfurized phosphorodiamidate reaction product when incorporated in a hydrocarbon lubricating oil in an amount of between about 1.0 and 10 wt. percent function as a combination corrosion, oxidation and wear inhibitor (load carrying and extreme pressure additive).

3,810,839
FLEXIBLE INSULANTS FOR CONTAINERS AND CONDUITS
Leonard F. Creaser, Wirral, England, assignor to Shell Oil Company, New York, N.Y.
Original application May 13, 1970, Ser. No. 36,828, now Patent No. 3,682,824. Divided and this application Dec. 2, 1971, Ser. No. 204,380
Claims priority, application Great Britain, Nov. 11, 1969, 55,096/69
Int. Cl. C04b *43/00*
U.S. Cl. 252—62 **5 Claims**

An improved thermal insulating material for systems containing liquefied gases at low temperatures, said insulant being a hydrocarbon-based foam having a freezing temperature lower or slightly higher than the liquefied gases.

3,810,840
METHOD OF MANUFACTURING A MAGNETIC TAPE LACQUER, AND A MAGNETIC TAPE MANUFACTURED WITH SAID LACQUER
Johannes van Ruler and Pieter Cornelis Scholten, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed May 11, 1972, Ser. No. 252,188
Claims priority, application Netherlands, May 15, 1971, 7106701
Int. Cl. H01f *1/28*
U.S. Cl. 252—62.54 **3 Claims**

A method of manufacturing a magnetic tape lacquer in which a polymer is used as a dispersing agent for the magnetizable particles. When using nitrocellulose, suitable solvents are acetic acid esters or propyl alcohol, butyl alcohol, isobutyl alcohol, amyl alcohol and isoamyl alcohol and methyl-ethyl ketone, methyl-n-butyl ketone, methyl-isobutyl ketone, methyl-n-amyl ketone and methyl-isoalkyl ketone and mixtures thereof.

3,810,841
SOAP IMPREGNATED RESILIENT POLYURETHANE FOAMS
Ferdinand Joseph Richter, Danbury, Conn., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 879,564, Nov. 24, 1969. This application Mar. 31, 1972, Ser. No. 240,227
Int. Cl. B08b *1/00;* **C11d** *17/04*
U.S. Cl. 252—91 **1 Claim**

Flexible polyurethane sponges, having a dry bland soap integrally incorporated therein, are provided by forming and foaming a mixture comprising a polyester with a hydroxyl number of 40 to 80, a molecular weight of 2,000 to 6,000 and a carboxy number of less than 1.5; an aromatic diisocyanate; water; a basic catalyst; and finely divided and intimately mixed bland soap with or without an effective amount of a germicide in an amount equal to 25 to 110% of the combined weight of the polyester and the diisocyanate to thereby form a sponge having from 60 to 100 pores per inch and the soap evenly distributed therethrough, in a finely subdivided state.

3,810,842
COMPOSITION FOR DECONTAMINATING CHEMICAL WARFARE AGENTS
Paul R. Steyermark, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Feb. 15, 1966, Ser. No. 529,174
Int. Cl. C11d *1/18*
U.S. Cl. 252—153 10 Claims

1. A composition consisting essentially of about 0.05–5 moles of at least one strong base selected from the group consisting of alkali metal hydroxides, alkali metal alkoxides, alkali metal phenoxides, and quaternary ammonium hydroxides per liter in a solvent consisting of about 30–100 parts of dimethyl sulfoxide and about 0–70 parts of at least one cosolvent selected from the group consisting of water and alcohols selected from the group consisting of alkanols having 1–5 carbon atoms per molecule, glycols having 2–5 carbon atoms per molecule, and triols having 3–5 carbon atoms per molecule.

3,810,843
SILICONE-SILICA COMPOSITIONS
George M. J. Slusarczuk and John F. Brown, Jr., Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed May 28, 1971, Ser. No. 148,182
Int. Cl. B01j *13/00*; C02b *1/14*
U.S. Cl. 252—313 S 6 Claims

Water-dispersed compositions resulting from contacting soluble silica (e.g., silicic acid sol) and at least 1 organo-functional silane coupling agent that has been hydrolyzed in an aqueous system, said organo-functional silane having the general formula R'_nSiR_{4-n} wherein R′ is a saturated, unsaturated or aromatic hydrocarbon residue that has been functionalized by a member selected from the group consisting of amino, azo, thia, dithia, oxa, and multiples and combinations thereof; R is a hydrolyzable group compatible with R′ selected from the group consisting of alkoxy, phenoxy, halo, amino, dialkylamino, and tertiary peroxyalkyl, and *n* is an integer having a value of 1–3. Some of these products have been shown to be very effective flocculants, particularly for the removal of biocolloids from waste water. Water dispersions of clay have been successfully employed instead of the silicic acid sol in the flocculation of biocolloids.

3,810,844
PHOSPHORUS-TIN OXIDE OXIDATIVE DEHYDROGENATION CATALYST
Emory W. Pitzer, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation of abandoned application Ser. No. 39,544, May 21, 1970. This application June 9, 1972, Ser. No. 261,474
Int. Cl. B01j *11/82*
U.S. Cl. 252—435 9 Claims

The activity of a catalyst useful for the oxidative dehydrogenation of olefins comprising oxides of phosphorus and tin is improved by treating the catalyst with superheated steam to produce a catalyst having a surface area of which at least 2 m.²/g. is comprised of pores having diameters of at least 700° A.

3,810,845
CATALYST AND PROCESS OF PREPARING
David G. Braithwaite, Carl E. Johnson, and Virgil L. Seale, Brookhaven, Miss., assignors to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed Sept. 28, 1972, Ser. No. 292,895
Int. Cl. B01j *11/40*
U.S. Cl. 252—455 Z 17 Claims

A method of bonding new active catalytic surfaces on to a catalyst support in order to produce a catalyst for petroleum or petrochemical processing is described.

3,810,846
HARD-SURFACE TREATING COMPOSITIONS
Ronald Edward Atkinson, Northumberland, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Apr. 11, 1972, Ser. No. 243,088
Claims priority, application Great Britain, Apr. 14, 1971, 9,375/71
Int. Cl. C11d *1/40*
U.S. Cl. 252—529 4 Claims

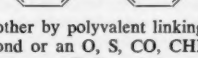
Surface-treating compositions containing surface-active agents able to exist in substantive cationic or non-substantive and non-cationic form are disclosed. The compositions contain a buffering agent to control pH and the cationic or non-cationic character of the surface-active agents and are effective in the treatment of hard surfaces. Methods of treating hard surfaces to provide soil-release properties are also disclosed.

3,810,847
PROCESS FOR PREPARING FREE-FLOWING α-OLEFIN SULFONATE POWDERS WHILE HYDROLYZING SULTONES
Aage Kristiansen, Stenungsund, Sweden, assignor to Mo Och Domsjo Aktiebolag, Ornskoldsvik, Sweden
No Drawing. Filed Jan. 22, 1971, Ser. No. 108,997
Claims priority, application Sweden, Jan. 23, 1970, 825/70
Int. Cl. C11d *3/065, 1/14, 11/04, 11/02*
U.S. Cl. 252—536 12 Claims

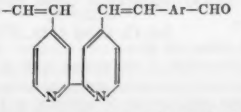
A process is provided for preparing free-flowing α-olefin sulfonate powders which comprises drying the α-olefin sulfonate under sultone-hydrolyzing conditions in the presence of sufficient alkali to neutralize any free sulfonic acids present as well as free alkene sulfonic acids formed by hydrolysis of sultones present in the α-olefin sulfonate, and recovering a free-flowing α-sulfonate powder substantially free from sultones.

3,810,848
COMPLEX FORMING POLYMERS FROM DIMETHYL DIPYRIDYL COMPOUNDS
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Original application July 28, 1970, Ser. No. 59,024, now abandoned. Divided and this application Jan. 9, 1973, Ser. No. 322,163
Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196
Int. Cl. C08g *33/02*
U.S. Cl. 260—2 R 3 Claims

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR_1 or NR_1 link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates



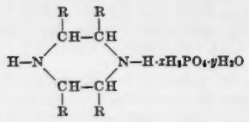
where Ar is aryl are prepared from the aryl dialdehyde and 4,4′-dimethyl-2,2′-dipyridyl.

3,810,849
MOLYBDENUM OXALATE-ANION EXCHANGE RESIN CATALYST
Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 28, 1972, Ser. No. 293,247
Int. Cl. C07c *29/02*; C08f *19/20, 27/04*
U.S. Cl. 260—2.1 E **2 Claims**

Macromolecular catalysts as exemplified by molybdenum (VI) oxalate chemically bonded to an anion exchange resin is an active catalyst for the reaction of water with olefins to form alcohols.

3,810,850
PIPERAZINE PHOSPHATES AS FIRE RETARDANTS FOR ORGANIC POLYMERS
Richard Lee Rowton, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Jan. 8, 1973, Ser. No. 321,794
Int. Cl. C08g *51/60*
U.S. Cl. 260—2.5 AJ **26 Claims**

Piperazine phosphates of the formula



wherein x is 1 or 2, y is 0 or 1 and each R, taken individually, is hydrogen or lower alkyl, and piperazine pyrophosphate act as fire retardants for organic polymers.

3,810,851
FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS
Arthur J. Norman, Tallmadge, and David S. Cobbledick, Kent, Ohio, assignors to The General Tire & Rubber Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 248,502, Apr. 28, 1972. This application Apr. 13, 1973, Ser. No. 350,852
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 AJ **14 Claims**

Low density, flexible and semiflexible polyetherurethane foams containing halogen-containing polymers such as polyvinyl chloride are rendered resistant to flame to the point of being self-extinguishing by the use of minor amounts of alumina trihydrate and antimony trioxide. Part of the halogen-containing polymer may be replaced with a chlorinated paraffin.

3,810,852
THIXOTROPIC AQUEOUS DISPERSIONS OF POLYMERS AND COPOLYMERS DERIVED FROM ETHYLENICALLY UNSATURATED MONOMERS
Ian McAlpine, Manchester, and David John Clough, Bolton, England, assignors to Magnesium Elektron Limited, Manchester, England
No Drawing. Continuation of abandoned application Ser. No. 112,036, Feb. 2, 1971. This application Mar. 29, 1973, Ser. No. 345,839
Claims priority, application Great Britain, Feb. 2, 1970, 4,887/70
Int. Cl. C09d *3/74, 5/04*
U.S. Cl. 260—17 R **9 Claims**

This invention is concerned with thixotropic, aqueous dispersions of polymers and copolymers, such dispersions find many applications in industry and the present invention is particularly, but not exclusively, directed to the application of the dispersions in the manufacture of paint, for example, emulsion paint. The dispersions of the invention contain a zirconium carbonate complex which imparts to the dispersive properties not obtainable with previously used zirconium derivations.

3,810,853
ACID-CURING THERMOSETTING COATING COMPOSITION
Frank James, Houston, Tex., and Richard A. Jones, Terre Haute, Ind., assignors to Commercial Solvents Corporation, New York, N.Y.
No Drawing. Original application Sept. 15, 1969, Ser. No. 858,102. Divided and this application July 24, 1972, Ser. No. 274,355
Int. Cl. C09d *3/52, 3/56, 3/66*
U.S. Cl. 260—21 **17 Claims**

A catalyzed thermosetting composition, useful for coatings and inks, consisting of one or more acid-curable resins and as a latent catalyst composition therefor an amino alkanediol hydrochloride and an alkanolamine dissolved in a lower alkanol or etheralkanol. The composition has good shelf life and is non-corrosive to containers. Preferred catalyst compositions consist of 2-amino-2-ethyl-1, 3-propanediol hydrochloride and 2-amino-2-methyl-1-propanol dissolved in isobutyl alcohol or in dipropylene glycol monomethyl ether.

3,810,854
PROCESS FOR MANUFACTURING INITIAL AMINOPLAST CONDENSATES
Kazuo Doi, Osaka, and Yoshihiro Kitsuda, Higashi Osaka, Japan, assignors to British Industrial Plastics Limited, Manchester, England
No Drawing. Filed Aug. 4, 1972, Ser. No. 278,022
Claims priority, application Japan, Aug. 5, 1971, 46/59,169
Int. Cl. C08g *9/10*
U.S. Cl. 260—21 **9 Claims**

A thermosetting aminoplast resin material is manufactured by effecting thermal mixing of urea or thiourea, paraformaldehyde and hexamethylene tetramine in a molar ratio within the range from 1:1.0:0.01 to 1:25:0.2 respectively, in the absence of a solvent, to produce a condensate which, when solid, is amorphous and has a softening point of less than 100° C. This material can be compounded with a filler and hardener and optionally with other moulding material components and the resulting compound granulated in a granular extrusion kneader to form a thermosetting aminoplast moulding composition.

3,810,855
POLYMER DISPERSIONS AND PROCESS FOR PREPARATION OF THE SAME
Hideyoshi Tugukuni, Sakai, and Mitsuhiro Matsuda, Tondabayashi, Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka-shi, Japan
No Drawing. Filed Oct. 5, 1972, Ser. No. 295,198
Claims priority, application Japan, July 7, 1972, 47/68,038
Int. Cl. C09d *3/58, 3/64, 5/02*
U.S. Cl. 260—22 CB **16 Claims**

This invention relates to a polymer dispersion useful especially as a coating composition, which comprises an organic liquid as a dispersion medium and an oil-modified epoxyester resin, oil-modified epoxy-modified alkyd resin, urethanated oil resin, maleic oil resin or oil-modified alkyd resin, said resin being solvated with the organic liquid and being block- or graft-polymerized with copolymerizable monomers, and to a process for the preparation of such polymer dispersion. This invention relates also to a polymer dispersion of the above type, in which an organic liquid having an aniline point below 60° C. and an aromatic hydrocarbon content of less than 12% by weight is used as the dispersion medium.

3,810,856

CHLOROPRENE POLYMER PROCESSING

Albert J. Dalhuisen, Sunnyvale, and William H. Deis, Belmont, Calif., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 87,318, Nov. 5, 1970. This application Nov. 9, 1972, Ser. No. 305,043

Int. Cl. C08d 9/14

U.S. Cl. 260—23.7 M 42 Claims

Improved compounding and processing of chloroprene polymers employing a dispersible form of MgO and pentaerythritol and esters thereof.

3,810,857

BITUMINOUS COMPOSITIONS CONTAINING PLASTIC OR ELASTOMER POLYSULPHIDE POLYMERS

Claude Garrigues, Noisy-le-Grand, Albert Nicolau, Pau, and Jean-Baptiste Signouret, Billere, France, assignors to Societe Nationale des Petroles d'Aquitaine Tour Aquitaine, Courbevoie, France

No Drawing. Filed Nov. 15, 1971, Ser. No. 199,039

Claims priority, application France, Nov. 20, 1970, 7041788; Oct. 20, 1971, 7137690

Int. Cl. C08g 51/52; C08h 13/08; C10c 3/02

U.S. Cl. 260—28 22 Claims

A process for preparing bituminous compositions for standard applications of bitumen, characterized by the fact that variable amounts of one or more plastic or elastomer polysulphide polymers, free from non-combined elemental sulphur, and which will mix with a fluxing oil, bitumen, bitumen cuts or fractions of such cuts, are added to the bitumen.

New bituminous compositions obtained by means of the process in question. These compositions have many applications, particularly in road-building, as a waterproofing material, for the coating of paper, for the preparation of seaproof paints, in soundproofing, in hydraulic engineering and metal coverings.

3,810,858

METHOD FOR RECOVERING POLYAMIDE ACID VALUES FROM DETERIORATED DISPERSIONS OF POLYAMIDE ACID

Edith M. Boldebuck, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,519

Int. Cl. C08g 20/32

U.S. Cl. 260—29.2 N 5 Claims

A method is provided for recovering polyamide acid values from deteriorated polyamide acid dispersions useful for electrocoating conducting substrates. Solids which have been mechanically separated by conventional means from such deteriorated aqueous polyamide acid dispersions can be employed to make useful polyamide acid mixtures.

3,810,859

THICKENABLE ALKYL ACRYLATE LATICES

Bela K. Mikofalvy, Sheffield Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 57,301, July 22, 1970. This application May 22, 1972, Ser. No. 255,539

Int. Cl. C08f 15/40, 37/00

U.S. Cl. 260—29.6 RW 9 Claims

Alkyl acrylate polymer latices capable of developing high viscosities are prepared by intially polymerizing lower alkyl acrylates and a glycidyl ester to form a base polymer and then overpolymerizing an olefinically unsaturated carboxylic acid monomer. The resulting latices may be conveniently thickened by the addition of base without adding natural or synthetic thickeners to the latex.

3,810,860

POLYMERIZATION OF CRUDE PETROLEUM HYDROCARBON

Earl N. Doyle, Houston, Tex., assignor to Petro-Form Industries (Trinidad) Ltd., San Fernando, Trinidad and Tobago, West Indies

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,439

Int. Cl. C08g 22/08, 51/26, 51/36

U.S. Cl. 260—33.6 UB 49 Claims

A two-component system adapted to react to form a highly cross-linked thermosetting polymer is disclosed. The first component comprises a crude petroleum hydrocarbon and an arylene diisocyanate which is miscible with the crude petroleum hydrocarbon. The second component comprises a crude petroleum hydrocarbon, hydrogen donor and an organic acid. The hydrogen donor may be either a tertiary amine having at least one hydroxyl group or a mixture of a tertiary amine with a polyol. Both the hydrogen donor and the organic acid are miscible with the crude petroleum hydrocarbon.

Thermosetting crude petroleum polymers, such as may be prepared from the two-component system are also disclosed. Such polymers contain from 40 percent to 80 percent by weight crude petroleum hydrocarbon.

3,810,861

SELF-EXTINGUISHING REINFORCED POLYAMIDE MOULDING COMPOSITIONS

Peter Tacke, Krefeld-Bockum, and Karl-Heinz Hermann, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,299

Claims priority, application Germany, Aug. 17, 1971, P 21 41 036.6

Int. Cl. C08g 51/10, 51/58

U.S. Cl. 260—37 N 4 Claims

Self-extinguishing polyamide moulding compositions which contain from 1 to 25% by weight, based on the whole composition, of at least one organic halogen compound having a halogen-content from 20 to 86% by weight, and from 1 to 25% by weight, based on the whole composition, of a mixture of an oxide selected from the group consisting of zinc oxide and iron oxide and at least one salt of a metal in Groups 1*a*, 2*a* or 2*b* of the Periodic System of Elements and a weak acid selected from the group consisting of an aliphatic carbon acid having 1 to 4 carbon atoms, an oxygen acid from an element in Groups 3*a*, 4*a*, 5*a*, or 6*a* of the Periodic System of Elements and H_2S.

3,810,862

CHAR-FORMING, FLAME RETARDANT POLYOLEFIN COMPOSITION

Ronald D. Mathis, Taylors, and James S. Dix, Greenville, S.C., assignors to Phillips Petroleum Company

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,277

Int. Cl. C09k 3/28

U.S. Cl. 260—42.45 5 Claims

Normally solid propylene homopolymer or a propylene copolymer with a minor amount of another 1-olefin containing two to eight carbon atoms per molecule and mixtures thereof are formed into a char-forming, flame retardant composition by incorporating ammonium poly-

phosphate, dipentaerythritol, melamine, and for best results an inorganic filler. Included among fillers are titanium dioxide and kaolin.

3,810,863

POLYMERIZABLE UNSATURATED POLYESTER RESIN COMPOSITIONS AND ARTICLES MADE THEREFROM

John A. Hatton, Jr., Verona, and John S. McNally, Lower Burrell, Pa., assignors to Koppers Company, Inc.

No Drawing. Original application Oct. 22, 1969, Ser. No. 868,603, now Patent No. 3,665,055. Divided and this application May 18, 1972, Ser. No. 254,798

Int. Cl. C08f *43/08*

U.S. Cl. 260—40 R 27 Claims

Styrene-maleic anhydride copolymer is added to a polymerizable composition containing an unsaturated polyester resin and a vinyl monomeric material which is capable of reacting with the polyester resin to form a thermoset polymer. The composition can be molded into articles as it is polymerized. The articles have improved properties, including improved surface properties, due to the use of the styrene-maleic anhydride copolymer. Glass fibers, as well as other materials generally included in polymerizable polyester compositions can be used also. The composition can be used to prepare chemically thickened resin mats or prepregs which can be molded and cured into articles having improved properties, including improved surface and dimensional stability properties.

3,810,864

TRANSLUCENT POLYVINYLCHLORIDE PLASTIC COMPOSITION AND METHOD FOR PREPARING SAME

Edward L. White, R.D. N-3, Freehold, N.J. 07728; Joseph Schwarcz, 1204 Grant Ave., Plainfield, N.J. 07060; and William D. Lang, 523 Lower Alden Drive, Rahway, N.J. 07065

No Drawing. Original application June 1, 1971, Ser. No. 149,021, now Patent No. 3,740,245. Divided and this application Dec. 27, 1972, Ser. No. 318,773

Int. Cl. C08f *45/04*; C09d *5/18*

U.S. Cl. 260—45.75 R 2 Claims

This invention relates to an improved substantially translucent plastic composition having enhanced flame retardancy prepared by adding to a plastic composition a new composition of matter prepared by reacting antimony trioxide or an antimony trioxide generating compound with a substrate comprising hydrous silica or a hydrous alkali or alkaline earth metal silicate in a weight ratio in the range of from 1:4 to 1:1 on an antimony trioxide:substrate basis, the reaction being carried out by calcining an admixture of said compounds at a temperature within the range of from 400° C. to 550° C. in an oxygen containing atmosphere.

3,810,865

DIALLYL PHTHALATE COMPOSITIONS CONTAINING DIACETONE ACRYLAMIDE

James L. Thomas, Baltimore, Md., assignor to FMC Corporation, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 33,927, May 1, 1970. This application Feb. 23, 1973, Ser. No. 335,254

Int. Cl. C08f *21/00*

U.S. Cl. 260—42.18 3 Claims

Diallyl phthalate prepolymer compositions having melt viscosites low enough to be used for encapsulating pressure-sensitive devices, whch are blends of diallyl phthalate prepolymer and diacetone acrylamide.

3,810,866

POLYACRYLATES CONTAINING FLAME RETARDANT

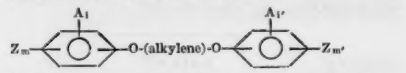
Arnold L. Anderson, 130 Carolina St., Alma, Mich. 48801

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,777

Int. Cl. C08f *45/58, 45/60*

U.S. Cl. 260—45.9 R 17 Claims

Plastic compositions containing polyacrylates and bisphenoxy compounds having the formula:



wherein Z is bromine, m and m' are integers having a value of 1–4, i and i' are integers having a value of 1 or 2, alkylene is a straight or branched chain alkylene group having from 1 to 6 carbon atoms and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,810,867

POLYACRYLATE PLASTIC COMPOSITIONS CONTAINING PHENOLIC ETHER FLAME RETARDANTS

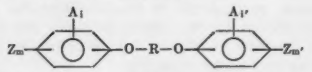
Arnold L. Anderson, 130 Carolina St., Alma, Mich. 48801

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,775

Int. Cl. C08f *45/58, 45/60*

U.S. Cl. 260—45.9 R 14 Claims

Plastic compositions containing polyacrylates and bisphenoxy compounds having the formula:



wherein Z is bromine or chlorine, m and m' are integers having a value of 1–5, i and i' are integers having a value of 0–2, R is herein defined and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halophenyl, benzyl or halo-benzyl.

3,810,868

DIMETHYLTIN MERCAPTO ESTER STABILIZERS FOR HALOGENATED RESINS

Lewis B. Weisfeld, Princeton, N.J., and Robert C. Witman, Cincinnati, Ohio, assignors to Cincinnati Milacron Chemicals, Inc., Reading, Ohio

No Drawing. Continuation-in-part of application Ser. No. 177,516, Sept. 2, 1971. This application Dec. 21, 1972, Ser. No. 317,228

Int. Cl. C08f *45/62*

U.S. Cl. 260—45.75 K 18 Claims

Dimethyltin derivatives of lower toxicity are prepared by reducing the amount of trimethyltin impurity.

3,810,869

OXIDATIVELY STABILIZED POLYMER COMPOSITIONS

Edward F. Zaweski, Pleasant Ridge, Mich., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Original application Aug. 22, 1967, Ser. No. 662,277. Divided and this application May 6, 1970, Ser. No. 35,283

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 B 7 Claims

Organic material is stabilized by small amounts of esters of [(dihydrocarbyl-4-hydroxybenzyl)thio- or oxy-]

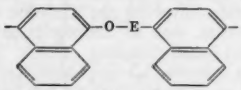
alkanoic acids. For example, polypropylene is stabilized by pentaerythritol tetrakis[2-[(3,5-di-tert-butyl-4 - hydroxybenzyl)thio]acetate]. Dialkylthio-dialkanoates and phosphites act as synergists.

3,810,870
AROMATIC POLYETHERS

Ronald George Feasey, Knebworth, and John Leslie Freeman, St. Neots, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 12, 1972, Ser. No. 252,555
Int. Cl. C08g *23/00*
U.S. Cl. 260—47 R **13 Claims**

A polymer is provided having recurring units of the formula



where E is preferably a direct link or may be a group having the formula —X—O— where X is divalent non-polar residue.

3,810,871
POLYURETHANE COATING COMPOSITION SUITABLE FOR USE IN LOW TEMPERATURE ENVIRONMENTS

Alfred E. Borchert, Cherry Hill, N.J., Frank M. Goff, Springfield, Pa., and Jerry Miron, Livingston, N.J., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Nov. 3, 1972, Ser. No. 303,432
Int. Cl. C08g *22/14*
U.S. Cl. 260—47 CB **15 Claims**

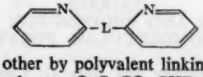
A polyurethane coating composition suitable for coating metals exposed to low temperature environments having high adhesion, flexibility, impact strength, abrasion resistance, tensile strength and tear resistance, together with corrosion prevention properties comprising the reaction product of a polyaryl polyisocyanate with a mixture of polyhydroxyl polydiene, allyl ethers of methylol-substituted phenols and N,N-di(hydroxyisopropyl)aniline having incorporated therein a suspending agent for the allyl ethers of the methylol-substituted phenols. The preferred suspending agent is carbon black since it also acts as a reinforcing agent.

3,810,872
COMPLEX FORMING POLYMERS PREPARED FROM DIALDEHYDE DIPYRIDYL COMPOUNDS

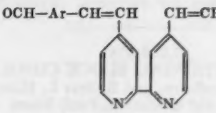
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Continuation of application Ser. No. 59,024, July 28, 1970. This application Jan. 9, 1973, Ser. No. 322,165
Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196
Int. Cl. C08g *3/00*
U.S. Cl. 260—64 **7 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR, or NR, link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates.



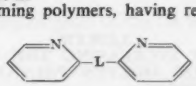
where Ar is aryl are prepared from the aryl dialdehyde and 4,4′-dimethyl-2,2′-dipyridyl.

3,810,873
COMPLEX FORMING POLYMERS PREPARED FROM A DIALDEHYDE DIPYRIDYL COMPOUND AND POLYVINYL ALCOHOL

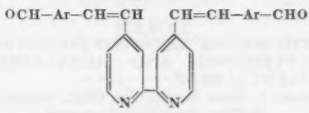
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Original application July 28, 1970, Ser. No. 59,024. Divided and this application Jan. 9, 1973, Ser. No. 322,164
Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196
Int. Cl. C08g *11/00*
U.S. Cl. 260—67 R **3 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR, or NR, link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates.



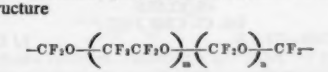
where Ar is aryl are prepared from the aryl dialdehyde and 4,4′-dimethyl-2,2′-dipyridyl.

3,810,874
POLYMERS PREPARED FROM POLY(PERFLUOROALKYLENE OXIDE) COMPOUNDS

Ronald A. Mitsch, Little Canada, and Joseph La Mar Zollinger, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 805,885, Mar. 10, 1969. This application Sept. 8, 1970, Ser. No. 70,540
Int. Cl. C08g *17/04, 22/02, 22/16*
U.S. Cl. 260—75 H **5 Claims**

Polymeric materials having a backbone comprising segments containing poly(perfluoroalkylene oxide) having the structure



Possessing unusual low temperature flexibility as well as generally good high temperature stability and resistance to solvents. Monomeric precursors and methods of preparation of said precursors and polymeric materials are de-

scribed. The polymers are useful as films, sealants, binders and as molded and extruded articles such as gaskets, O-rings, and hose-linings for cryogenic applications.

3,810,875

FLUORINE-CONTAINING BLOCK COPOLYMERS

David E. Rice, Woodbury, and Robert L. Hansen, Roseville, Minn. (both 3M Center, St. Paul, Minn. 55101)

No Drawing. Continuation-in-part of abandoned application Ser. No. 70,541, Sept. 8, 1970. This application Aug. 2, 1971, Ser. No. 168,373

Int. Cl. C08f *29/14, 29/16*

U.S. Cl. 260—899 **18 Claims**

Poly(perfluoroalkylene oxide) polyperoxides, such as the diacyl peroxide of poly(perfluoroalkylene oxide), are used to initiate the free radical polymerization of ethylenically-unsaturated monomers to produce block copolymers comprising alternating poly(perfluoroalkylene oxide) blocks and polyalkylene blocks. These block copolymers, as such or as cross-linked, have very good low temperature flexibility, i.e., low glass transition temperatures, which makes them very useful for gaskets, O-rings, sealants, and other shaped articles which can be used even in cryogenic environs.

3,810,876

PROCESS OF INCREASING THE MOLECULAR WEIGHT OF MOLTEN POLYAMIDES WITH DIARYL ESTERS

Clifton Douglas Cowell and John Richardson Wright, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 868,057, Oct. 21, 1969. This application Feb. 4, 1972, Ser. No. 223,742

Int. Cl. C08g *20/38*

U.S. Cl. 260—78 SC **11 Claims**

A process for increasing the chain length and hence the viscosity of synthetic linear polyamides, whilst preserving the linearity by means of addition of a defined class of diaryl esters. Also included in the invention are the polymers with increased viscosity and shaped products made therefrom.

3,810,877

POLYACID HALIDE MODIFIED COPOLYMERS OF VINYLPYRIDINES AND ACRYLAMIDE OR METHACRYLAMIDE

Richard C. Doss, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Feb. 18, 1972, Ser. No. 227,657

Int. Cl. C08f *15/02*

U.S. Cl. 260—78.4 D **10 Claims**

Sewage and water are chemically conditioned with polyacid halide modified copolymers of vinylpyridine with acrylamide or methacrylamide. Coagulation, flocculation, and filtration in sewage and water treatment processes are significantly improved by the use of the aforesaid modified copolymers.

3,810,878

PROCESS FOR PREPARING POLYMERS

Hideo Sato and Kunitoshi Shimizu, Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Sept. 9, 1971, Ser. No. 179,227

Claims priority, application Japan, Sept. 22, 1970, 45/82,503

Int. Cl. C08f *1/62*

U.S. Cl. 260—78.5 B **10 Claims**

Process for preparing a polymeric material which comprises polymerizing acrylonitrile or acrylonitrile admixed with a minor amount of at least one ethylenically unsaturated compound copolymerizable therewith in the presence of a catalyst system consisting of redox type catalyst and at least one oxime in an aqueous medium. Thus produced polymers or copolymers may be used as starting materials for acrylic synthetic fibers superior in both whiteness and heat stability of whiteness.

3,810,879

METHOD FOR MAKING AROMATIC HYDROCARBON POLYMERS AND PRODUCTS PRODUCED THEREBY

Allan S. Hay, Schenectady, and Howard M. Relles, Rexford, N.Y., assignors to General Electric Company

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,786

Int. Cl. C08f *5/00, 7/02*

U.S. Cl. 260—93.5 R **2 Claims**

An organometallic condensation polymerization method is provided for making certain aromatic hydrocarbon polymers involving the lithiation of particular aromatic diolefins, such as compounds having two isolated 1-aryl-1,2-dialkylethylene groups in a single molecule, for example, 2,2-bis-(4-phenylcyclohex-3-enyl) propane. The resulting polymers are film forming and can be employed as dielectrics for making capacitors.

3,810,880

PROCESS FOR THE PREPARATION OF HUMAN ACTH AND PROTECTED HUMAN ACTH

Kalman Medzihradszky, Sandor Bajusz, Lajos Kisfaludy, Miklos Low, Zoltan Paulay, Laszlo Szporny, and Zsuzsanna Lang, Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

No Drawing. Continuation of abandoned application Ser. No. 666,510, Sept. 8, 1967. This application Dec. 9, 1969, Ser. No. 883,660

Claims priority, application Hungary, Sept. 10, 1966, RI 306; Mar. 28, 1967, RI 317

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.5 **2 Claims**

This invention relates to the synthetic preparation of human corticotropine and analogous biologically active polypeptides having an amino acid sequences corresponding to that of natural corticotropine.

3,810,881

PEPTIDES HAVING D-α-PHENYLGLYCINE, L-LYSINE AND L-ORNITHINE IN POSITIONS 1, 17 AND 18, RESPECTIVELY

Werner Rittel, Basel, and Max Brugger, Birsfelden, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 7, 1972, Ser. No. 260,554

Claims priority, application Switzerland, June 18, 1971, 8,932/71

Int. Cl. C07c *103/52;* **C07g** *7/00*

U.S. Cl. 260—112.5 **5 Claims**

Peptides and peptide amides containing 18–39 aminoacids of the N-terminus of natural corticotropins, but in which the first aminoacid is replaced by D-α-phenylglycine and the aminoacids in the positions 17 and 18 are replaced by L-lysine or L-ornithine, and analogues of these compounds.

3,810,882

COMPOSITION AND PROCESS FOR CROSS-LINKING MACROMOLECULAR POLYSACCHARIDE SOLUTIONS

William C. Browning and Billy G. Chesser, Houston, Tex., assignors to Milchem Incorporated, Houston, Tex.

Original application June 18, 1970, Ser. No. 47,325, now Patent No. 3,697,498. Divided and this application Aug. 21, 1972, Ser. No. 282,376

Int. Cl. C07c *3/00*

U.S. Cl. 260—209 R **4 Claims**

A cross-linking agent for macromolecular polysaccharide materials consisting essentially of a chelating composition formed from (1) an organic polyelectrolyte ligand component, and (2) a component of a metal of

the first series of the transition elements of the Periodic Table. This cross-linking agent has been found to provide enhanced rheological properties without obtaining metal ion overtreatment characteristics. In a preferred form, said cross-linking agent also includes a compound containing a metal from Group II of the Periodic Table. The cross-linked materials may be utilized in textile sizing agents, paints, drilling fluids, and the like.

3,810,883
ADENOSINE 3,5-CYCLIC MONOPHOSPHATE PALMITATES
Charles Giles Smith, Princeton, N.J., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed June 1, 1972, Ser. No. 258,677
Int. Cl. C07d *51/54*
U.S. Cl. 260—211.5 R **2 Claims**

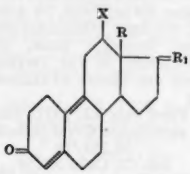
The two new compounds 2′-O-palmitoyladenosine 3′,5′-cyclic monophosphate and N^6,2′-O-dipalmitoyladenosine-3′-5′-cyclic monophosphate are potent inhibitors of adenylate cyclase and are useful for the suppression of hyperhormonal states such as hyperthyroidism and hyperadrenalism.

3,810,884
1-ADAMANTYL-2-CARBOXY-AZACYCLIC COMPOUNDS
Elijah H. Gold, West Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.
No Drawing. Filed Nov. 17, 1970, Ser. No. 90,474
Int. Cl. C07d *25/00, 27/04, 29/24*
U.S. Cl. 260—239 A **6 Claims**

Disclosed herein are substituted 1-(1-adamantyl)-2-carboxy-azacyclic compounds and certain derivatives thereof. Their compositions are particularly useful in the treatment of parkinsonism.

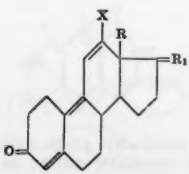
3,810,885
NOVEL STEROIDS AND PROCESSES
Robert Bucourt, Paris, Andre Pierdet, Noisy-le-Sec, Jean-Claude Gasc, Bondy, and Lucien Nedelec, Clichy-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 782,425, Dec. 9, 1968. This application Oct. 4, 1971, Ser. No. 186,483
Claims priority, application France, Dec. 12, 1967, 131,869
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 C **32 Claims**

Novel 12β-alkyl-$\Delta^{4,9}$-gonadienes of the formula



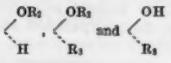
Ia

and 12-alkyl-$\Delta^{4,9,11}$-gonatrienes of the formula



Ib

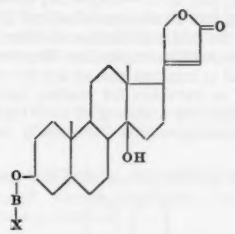
wherein R is alkyl of 1 to 3 carbon atoms, X is alkyl of 1 to 3 carbon atoms and R_1 is selected from the group consisting of



wherein R_2 is selected from the group consisting of hydrocarbyl of 1 to 10 carbon atoms and acyl of an organic carboxylic acid of 1 to 18 carbon atoms and R_3 is selected from the group consisting of saturated hydrocarbon of 1 to 6 carbon atoms and unsaturated hydrocarbon of 2 to 6 carbon atoms which compounds possess hormonal properties and to two novel processes for their preparation and novel intermediates therefor.

3,810,886
DERIVATIVES OF DIGITOXIGENIN
Herman Rutner, Hackensack, N.J., and Raul Rapun, Suffern, and Nathan Lewin, New York, N.Y., assignors to Becton, Dickinson and Company, East Rutherford, N.J.
No Drawing. Filed May 24, 1971, Ser. No. 146,542
Int. Cl. C07c *173/02*
U.S. Cl. 260—239.57 **29 Claims**

Derivatives of digitoxigenin having the following structural formula:

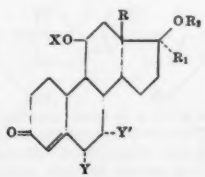


wherein B is succinyl, maleyl, o-phthaloyl or fumaryl and X is an unlabeled or radioiodinated amino acid radical.

A preferred compound is radioiodinated 3-succinyl digitoxigenin-L-tyrosine and the compounds, which are water soluble, are useful for the radioimmunological assay of digitoxin.

3,810,887
NOVEL 11β-ALKOXY STEROIDS
Robert Bucourt, Paris, André Pierdet, Noisy-le-Sec., and Jean Salmon, Paris, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Nov. 23, 1971, Ser. No. 201,564
Claims priority, application France, Nov. 24, 1970, 7042158
Int. Cl. C07c *169/08, 173/00*
U.S. Cl. 260—239.55 C **11 Claims**

11β-alkoxy-Δ^4-gonenes of the formula



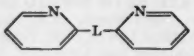
I

wherein R and X are alkyl of 1 to 4 carbon atoms, R_1 is a saturated or unsaturated hydrocarbon of 1 to 6 carbon atoms, R_2 is selected from the group consisting of hydrogen and acyl of an organic carboxylic acid of 1

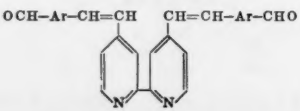
to 18 carbon atoms and Y and Y' are selected from the group consisting of hydrogen and methyl and the enolic esters thereof with an organic carboxylic acid of 1 to 18 carbon atoms which possess anti-androgenic and anti-estrogenic activity, their preparation and novel intermediates.

3,810,888
COMPLEX FORMING POLYMERS
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Original application July 28, 1970, Ser. No. 59,024, now abandoned. Divided and this application June 19, 1972, Ser. No. 266,527
Int. Cl. C07d *31/42*
U.S. Cl. 260—240 D **3 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR_1 or NR_1 link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates

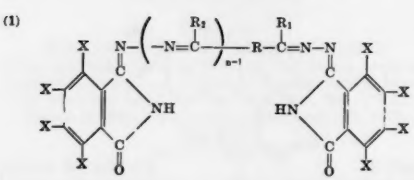


where Ar is aryl are prepared from the aryl dialdehyde and 4,4'-dimethyl-2,2'-dipyridyl.

3,810,889
IMINOISOINDOLINONE DYESTUFFS AND PROCESS FOR THEIR MANUFACTURE
Ernst Model, Basel, and Jost von der Crone and Andre Pugin, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed May 5, 1972, Ser. No. 250,538
Claims priority, application Switzerland, May 28, 1971, 7,846/71
Int. Cl. C07d *27/50*
U.S. Cl. 260—240 G **8 Claims**

Iminoisoindolinone dyestuffs of the formula

(1)



wherein R represents a direct bond, a carbocyclic or heterocyclic aromatic radical, R_1 and R_2 represent hydrogen atoms, alkyl or aryl radicals, the symbols X represent halogen atoms and *n* represents 1 or 2, are valuable pigments coloring plastics and lacquers in yellow shades of outstanding fastness properties.

3,810,890
AMINECARBOTRITHIOATES AND PREPARATION
Joseph E. Dunbar and Joan H. Rogers, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of abandoned application Ser. No. 682,511, Nov. 13, 1967. This application July 26, 1971, Ser. No. 166,258
Int. Cl. C07d *87/46*
U.S. Cl. 260—246 B **2 Claims**

A thiolsulfonate is reacted with an aminecarbodithioate salt to give an aminecarbotrithioate product. The products of this invention have biological activity, particularly in controlling microorganisms and other pests.

3,810,891
PRODUCTION OF CYANURIC ACID
John M. Lee, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Apr. 7, 1972, Ser. No. 242,201
Int. Cl. C07d *55/36*
U.S. Cl. 260—248 A **8 Claims**

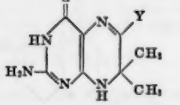
This invention relates to cyanuric acid and more particularly, to an improved process for preparing cyanuric acid by the pyrolysis of urea or a urea pyrolyzate in an inert capped- or cyclic-polyether solvent at temperatures from about 160 to about 220° C. while sparging with an inert gas.

3,810,892
TRICHLOROISOCYANURIC ACID MANUFACTURE
Raymond N. Mesiah, Somerset, N.J., Harold R. Chancey, Charleston, W. Va., and Milton Cohen, Old Bridge, N.J., assignors to FMC Corporation, New York, N.Y.
Filed Sept. 14, 1971, Ser. No. 180,437
Int. Cl. C07d *55/42*
U.S. Cl. 260—248 C **6 Claims**

A process is provided for producing trichloroisocyanuric acid by chlorinating a salt of dichloroisocyanuric acid in an aqueous mixture to a pH of between 2.5 and 3.5, at a temperature of at least 0° C. and preferably about 15° C. to 20° C. The aqueous mixture containing a salt of dichloroisocyanuric acid can be an effluent from the production of the salt. Furthermore, a process for producing dichloroisocyanuric acid, a salt of dichloroisocyanuric acid and trichloroisocyanuric acid in any desired proportions is provided.

3,810,893
AMINO PYRIMIDINES
Hamish Christopher Swan Wood, 26 Albert Drive, Bearsden, Glasgow, Scotland; Alexander Stuart, 256 Southborough Lane, Bromley, Kent, England; Adrian Charles Ward Curran, 30 The Terrace, Harrow, Middlesex, England; and Saleba Al-Hassan, P.O. Box 195, Baghdad, Iraq
No Drawing. Filed July 13, 1971, Ser. No. 162,297
Claims priority, application Great Britain, July 27, 1970, 36,289/70
Int. Cl. C07d *51/38*
U.S. Cl. 260—256.4 C **3 Claims**

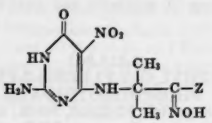
A pharmaceutical formulation of a compound of Formula II'



(II')

wherein Y is a lower alkyl group, in association with a pharmaceutically acceptable carrier, as an antibacterial

product, and methods involving the preparation and reductive cyclization of a compound of Formula IV



(IV)

wherein Z is a lower alkyl group or a hydroxymethyl group.

3,810,894
DERIVATIVES OF PYRAZOLO[1,5-c]PYRIMIDINES AND PROCESS FOR THEIR PREPARATION

Eckart Kranz, Wuppertal-Elberfeld, and Marianne Bock, deceased, late of Wuppertal-Elberfeld, by Hermann Bock, executor, Bielefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 24, 1971, Ser. No. 201,987
Claims priority, application Germany, Nov. 27, 1970, P 20 58 501.7
Int. Cl. C07d *51/46*
U.S. Cl. 260—256.4 F **24 Claims**

Derivations of pyrazolo[1,5-c]pyrimidines, which is a new heterocyclic nucleus, possess antimicrobial activity, particularly trichomonacidal and amoebicidal action. They are prepared from a β-triketone and a semicarbazide, thiosemicarbazide or aminoguanidine. A typical embodiment is 6H - 7 - thiono - 2,5-dimethyl pyrazolo[1,5-c] pyrimidine.

ERRATUM

For Class 260—268 see:
Patent No. 3,811,026

3,810,895
SYNTHESIS OF PIPERAZINES

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 30, 1971, Ser. No. 185,452
Int. Cl. C07d *51/70, 51/72*
U.S. Cl. 260—268 SY **6 Claims**

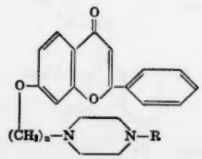
Piperazines are prepared by reacting a glycol, and particularly a glycol containing hydroxy substituents on adjacent carbon atoms, with an amide at elevated temperatures and a pressure in the range of from atmospheric to about 300 atmospheres.

3,810,896
FLAVONYLOXYALKYL-PIPERAZINE COMPOUNDS

Ernst-Christian Witte, Mannheim, Kurt Stach, Mannheim-Waldhof, Max Thiel, Mannheim, and Androniki Roesch and Egon Roesch, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Germany

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,134
Claims priority, application Germany, May 14, 1971, P 21 23 923.6
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 BC **11 Claims**

Certain novel 4-[w-(flavon-7-yloxy)-alkyl] - piperazine compounds of the formula



(I)

wherein R is an unsubstituted or substituted phenyl or benzyl radical, the substituents being halogen atoms or lower alkyl or alkoxy radicals, e.g., of from 1 to 6 carbon atoms, and *n* is 1, 2 or 3; and the pharmacologically compatible salts thereof

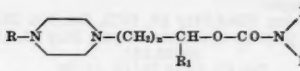
have outstanding anti-edematous activity and reduce increased capillary permeability.

3,810,897
N-SUBSTITUTED - N-ALKANOL PIPERAZINE CARBAMATES AND ACID ADDITION SALTS THEREOF

Jean B. Philippe, Clermont-Ferrand, France, assignor to Ferlux, Clermont-Ferrand, France

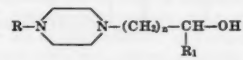
No Drawing. Filed Oct. 12, 1971, Ser. No. 188,583
Claims priority, application France, Oct. 16, 1970, 7037396
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 FT **2 Claims**

N-substituted-N'-alkanol piperazine carbamates of the General Formula I



(I)

wherein R, R_1, R_2, R_3 and *n* are as defined in the specification, the acid addition salts of these carbamates, a method of manufacturing same from an alcohol of the General Formula II



(II)

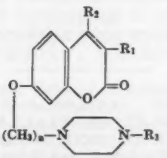
and therapeutic compositions containing the carbamates and salts thereof, having neuroleptic, tranquilizing and central analgesic properties.

3,810,898
COUMARIN-7-YLOXY-ALKYL PIPERAZINE COMPOUNDS

Ernst-Christian Witte, Mannheim, Kurt Stach, Mannheim-Waldhof, Max Thiel, Mannheim, and Androniki Roesch and Egon Roesch, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,607
Claims priority, application Germany, May 14, 1971, P 21 23 924.7
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 BC **16 Claims**

Certain novel 4-[ω-(coumarin-7-yloxy)-alkyl]-piperazine compounds of the formula:



wherein R_1 is hydrogen atom or a lower alkyl; R_2 is lower alkyl; R_3 is an unsubstituted or substituted phenyl or benzyl radical, the substituents, when present, being halogen or lower alkyl or alkoxy groups, and *n* is 1, 2 or 3; and the pharmacologically compatible salts thereof,

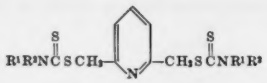
have outstanding anti-oedematous activity and reduce increased capillary permeability.

3,810,899
2-HYDROXY-N-SUBSTITUTED-MORPHINAN DERIVATIVES
Ernest Mohacsi, Nutley, and Willy Leimgruber, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 233,715, Mar. 10, 1972. This application Oct. 20, 1972, Ser. No. 299,478
Int. Cl. C07d *43/28*
U.S. Cl. 260—285 **12 Claims**

Novel 2- and 4-hydroxymorphinan derivatives, which may bear a variety of N-substituents, are disclosed. These morphinans are useful as analgesic agents and are also useful as antagonists of certain strong analgesics such as morphine.

3,810,900
PYRIDINE BIS(DITHIOCARBAMATE) DERIVATIVES AND PREPARATION THEREOF
Ikuo Matsumoto, Kanji Nakagawa, Meiki Matsuzaki, and Kenji Horiuchi, Tokyo, Japan, assignors to Banyu Pharmaceutical Co., Ltd., and Hiroyoshi Hidaka, Tokyo, Japan
No Drawing. Filed May 19, 1972, Ser. No. 254,943
Claims priority, application Japan, May 25, 1971, 46/35,133
Int. Cl. C07d *29/10, 31/50*
U.S. Cl. 260—293.69 **2 Claims**

Pyridine bis(dithiocarbamate) derivatives having the formula:



wherein R^1 represents a lower alkyl group or a lower alkene group or a phenyl group and R^2 represents a hydrogen atom or a lower alkyl group, or R^1 and R^2 taken together may form a heterocyclic ring with the nitrogen atom, has been prepared by reacting 2,6-bis(halomethyl) pyridine with a metal salt or amine salt or dithiocarbamic acid having the formula:

or with carbon bisulfide and an amine having the formula:

$$R^1R^2NH$$

or by reacting 2,6-bis(mercaptomethyl) pyridine with an isothiocyanate of the formula:

$$R^1NCS$$

These pyridine bis(dithiocarbamate) derivatives exhibit physiological effects on the circulatory system and demonstrate anti-hypertensive and anti-inflammatory properties.

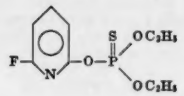
3,810,901
3-(COUMARIN-3-YLPHENYL)-1,2,4-OXADIAZOL-5-YL AMMONIUM SALTS
Hugh Davidson, Castleford, and Brian Ernest Leggetter, Wakefield, England, assignors to Hickson & Welch Limited, Castleford, England
No Drawing. Filed Feb. 10, 1972, Ser. No. 225,336
Claims priority, application Great Britain, Feb. 11, 1971, 4,465/71
Int. Cl. C07d *85/52*
U.S. Cl. 260—293.58 **13 Claims**

3-(coumarin - 3 - ylphenyl)-1,2,4-oxadiazol-5-yl ammonium salts which may have an alkyl substituent at the 7 and/or 4 position of the coumarin ring and/or a non-chromophoric group (e.g. halogen, alkyl or alkoxy) at another position of the coumarin ring.

The compounds are useful in the whitening, brightening and/or bleaching of synthetic and semi-synthetic fibres.

3,810,902
O,O-DIETHYL O-(6-FLUORO-2-PYRIDYL) PHOSPHOROTHIOATE
Raymond H. Rigterink, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation of abandoned application Ser. No. 214,371, Dec. 30, 1971. This application Feb. 28, 1973, Ser. No. 336,608
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 K **1 Claim**

O,O - diethyl O - (6-fluoro-2-pyridyl) phosphorothioate corresponding to the formula



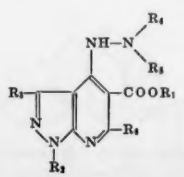
is prepared and is useful as a nematicide.

3,810,903
PROCESS FOR THE PRODUCTION OF NITRILES
Juergen Luecke, Tubingen, Germany, assignor to Sandoz Ltd., Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 3,217, Jan. 15, 1970, now Patent No. 3,646,103, which is a continuation-in-part of application Ser. No. 807,914, Mar. 17, 1969, now Patent No. 3,663,589. This application Dec. 13, 1971, Ser. No. 207,600
Claims priority, application Great Britain, Mar. 18, 1969, 14,136/69; Germany, Mar. 22, 1969, P 19 14 688.4; Japan, Mar. 26, 1969, 44/22,457; France, Mar. 27, 1969, 69909116; Italy, Mar. 27, 1969, 14,710/69
Int. Cl. C07d *31/46*
U.S. Cl. 260—294.9 **8 Claims**

Improvement in the production of nitriles by heating carboxylic acids or their functional derivatives with urea, which improvement consists in the additional use of amidosulphonic acid in the reaction mixture.

3,810,904
HYDRAZIDES OF PYRAZOLOPYRIDINE CARBOXYLIC ACIDS AND ESTERS
Hans Hoehn, Tegernheim, Germany, and Mark Chasin, Englishtown, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Continuation-in-part of application Ser. No. 42,415, June 1, 1970, which is a continuation-in-part of application Ser. No. 833,672, June 16, 1969, both now abandoned. This application Sept. 22, 1972, Ser. No. 291,445
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 B **6 Claims**

New hydrazides of pyrazolopyridine carboxylic acids and esters having the general formula



wherein R_1 is hydrogen, lower alkyl or phenyl-lower alkyl, R_2 is hydrogen, lower alkyl, phenyl, phenyl-lower alkyl, R_7, R_8-phenyl-lower alkyl or cycloalkyl-lower alkyl, R_3 is hydrogen lower alkyl, phenyl or R_7, R_8-phenyl, R_4 is hydrogen or lower alkanoyl, R_5 is lower alkanoyl, R_6 is hydrogen or lower alkyl and R_7 and R_8 each is halogen, lower alkyl or lower alkoxy, and acid addition salts thereof, which are antimicrobial agents and central depressants are the subject of this invention.

3,810,905

PYRAZOLO[3,4-b]PYRIDINE-5-CARBOXAMIDES

Hans Hoehn, Tegernheim, Germany, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of application Ser. No. 195,808, Nov. 4, 1971, now Patent No. 3,733,328, dated May 15, 1973, which is a continuation-in-part of application Ser. No. 62,674, Aug. 10, 1970, now Patent No. 3,720,675, dated Mar. 13, 1973. This application Sept. 22, 1972, Ser. No. 291,504

Int. Cl. C07d *31/44*

U.S. Cl. 260—295.5 B **10 Claims**

New 5-carboxamides of pyrazolo[3,4-b]pyridines and salts thereof are useful as ataractic, analgesic and anti-inflammatory agents.

3,810,906

N^1-HETEROACYLATED PHENYLHYDRAZINES

Hisao Yamamoto, Nishinomiya, and Masaru Nakao, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Application June 23, 1969, Ser. No. 838,037, now Patent No. 3,629,284, which is a continuation of abandoned application Ser. No. 541,967, Apr. 12, 1966. Divided and this application July 29, 1970, Ser. No. 64,843

Int. Cl. C07d *63/16*

U.S. Cl. 260—295 H **4 Claims**

The present invention relates to a novel process for producing N-substituted indole derivatives having high anti-inflammatory, anti-pyretic and analgesic activities. More particularly the present invention relates to a novel process for producing N-acyl 3-indolyl-aliphatic acid compounds comprising reacting an N^1-acylated phenylhydrazine compounds with an aliphatic acid compound.

3,810,907

FULL PYRIDINE PHOSPHONIC ACIDS

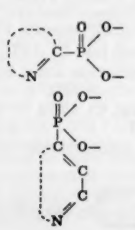
Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 801,856, Feb. 24, 1969, now Patent No. 3,673,196, dated June 27, 1972. This application Aug. 25, 1971, Ser. No. 175,001

Int. Cl. C07d *31/28*

U.S. Cl. 260—297 P **3 Claims**

Nitrogen-heterocyclic phosphonates wherein the phosphonate group is ortho- or para- to the nitrogen heterocyclic group, where the compounds are characterized as follows:

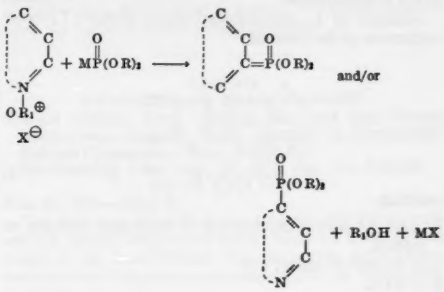


(ortho substituted) and

(para substituted)

wherein the dotted line represents a cyclic structure which cyclic structure may be the sole cyclic structure, or may be attached to other cyclic groups.

These nitrogen heterocyclic phosphonates are prepared by reacting an aromatic nitrogen-heterocyclic compound, wherein the nitrogen atom is in the form of a quaternary alkoxy derivative (N—OR hereinafter defined) with a phosphite salt, preferably in the form of an ester of the phosphite, as exemplified by the following equation:



and/or

These compounds which may be characterized as phosphonates of nitrogen-heterocyclics have many uses including their use as biocides, such as bacteriocides, herbicides, corrosion inhibitors, chelating agents, etc.

3,810,908

1-(5-NITROTHIAZOL-2-YL)-IMIDAZOLIDINE-2-THIONE

Serge Tchelitcheff, Thiais, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 21, 1972, Ser. No. 236,579

Claims priority, application France, Mar. 23, 1971, 7110150

Int. Cl. C07d *99/10*

U.S. Cl. 260—306.8 R **1 Claim**

1-(5-nitrothiazol-2-yl)-imidazolidine-2-thione, which is a new compound having anti-parasitic and anti-microbial properties, is prepared by reacting a 2-alkylthio-(or 2-benzylthio)-1-(5-nitrothiazol-2-yl)-Δ^2-imidazoline with sodium hydrogen sulphide.

3,810,909

SUBSTITUTED 1 - (3,5 - SUBSTITUTED - 4 - ISOXAZOLYL)-7-HYDROXY - NON-8-EN-3-ONES AND TAUTOMERS

Gabriel Saucy, Essex Fells, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 19, 1970, Ser. No. 4,026, now Patent No. 3,671,539. Divided and this application Mar. 29, 1972, Ser. No. 239,370

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **3 Claims**

Substituted 1-(3,5-substituted-4-isoxazolyl)-7-hydroxy-non-8-en-3-ones and tautomers thereof are intermediates useful in the preparation of pharmaceutically valuable steroidal compounds. Preparation of such compounds from 2-(2'-substituted aminoethyl)-2-hydroxy - 6 - vinyl-tetrahydropyrans and their alkyl substituted analogs is described.

3,810,910

1-ALKOXY- OR 1-ALKYLTHIO-CARBONYL-2-THIENYL-(2')-BENZIMIDAZOLES

Friedrich J. Meyer, deceased, late of Wuppertal, Germany, by Ilse Frieda Anna Meyer, heiress, Wuppertal, and Helmut Kaspers and Hans Scheinpflug, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

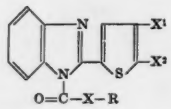
No Drawing. Filed Dec. 27, 1972, Ser. No. 318,964

Claims priority, application Germany, Jan. 11, 1972, P 22 01 062.4

Int. Cl. C07d *49/38*

U.S. Cl. 260—309.2 **9 Claims**

1-alkoxy- or 1 - alkylthio-carbonyl-2-thienyl-(2')-benzimidazoles of the formula



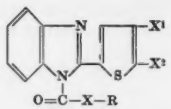
(I)

in which

X^1 and X^2 each independently is hydrogen, halogen or methyl,
X is oxygen or sulfur, and
R is alkyl,

which possess fungicidal properties.

1-alkoxy- or 1 - alkylthio-carbonyl-2-thienyl-(2')-benzimidazoles of the formula



(I)

in which

X^1 and X^2 each independently is hydrogen, halogen or methyl,
X is oxygen or sulfur, and
R is alkyl,

which possess fungicidal properties.

3,810,911

N,N-DIMETHYL-O-[1-ALKYL - 4 - CYANO-5-ALKOXYPYRAZOL(3)YL]-CARBAMIC ACID ESTERS

Hellmut Hoffmann, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

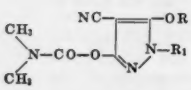
No Drawing. Filed Jan. 31, 1972, Ser. No. 222,289

Claims priority, application Germany, Feb. 10, 1971, P 21 06 303.6

Int. Cl. C07d *49/18*

U.S. Cl. 260—310 R **5 Claims**

N,N-dimethyl-O-[1-alkyl - 4 - cyano - 5 - alkoxypyrazol-(3)yl]-carbamic acid esters of the general formula



(I)

in which

R and R_1 are each lower alkyl radicals,

which possess acaricidal and insecticidal properties.

3,810,912

ALKYLHYDROXYPHENYLCARBOALKOXY-SUBSTITUTED PHTHALIMIDE

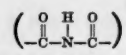
George Kletecka, Lakewood, and Peter D. Smith, Cleveland, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application Apr. 27, 1970, Ser. No. 32,435, now Patent No. 3,678,047. Divided and this application Feb. 10, 1972, Ser. No. 225,294

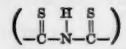
Int. Cl. C07d *27/52*

U.S. Cl. 260—326 A **4 Claims**

Compounds containing one or more alkylhydroxyphenyl groups bonded through carboalkoxy linkages to a nitrogen atom of a heterocyclic nucleus containing an imidodicarbonyl



group or an imidodithiocarbonyl



group have been prepared and are extremely effective stabilizers against the deleterious effects of oxygen, heat and light for organic materials. The stability of polymeric compositions such as α-olefin polymers and copolymers, acetal polymers, polyamides, polyesters and polyurethanes is markedly increased by the addition of small amounts of the present compounds thereto.

3,810,913

METHOD OF CHLORINATING MALEIC ANHYDRIDE, MALEIMIDES AND BISMALEIMIDES

Howard M. Relles, Rexford, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed Feb. 16, 1972, Ser. No. 226,974

Int. Cl. C07d *27/18*

U.S. Cl. 260—326.26 **8 Claims**

A method is provided for converting maleic anhydride or aliphatically unsaturated imides derived therefrom, such as N-phenylmaleimide, to the corresponding chlorinated derivatives, based on the replacement of α-carbon hydrogen atoms with chlorine atoms. Chlorination can be achieved by the addition of pyridine to a thionyl chloride solution of the aliphatically unsaturated anhydride or imides. The resulting chlorinated compound can be employed as intermediates for making polymers with dihydric phenols.

3,810,914

BENZENESULFONYL SEMICARBAZIDES

Laszlo Beregi, Boulogne-sur-Seine, Pierre Hugon, Rueil-Malmaison, Pierre Desnoyers, Fontenay-aux-Roses, and Jacques Duhault, Chatou, France, assignors to Societe en nom Collectif Science Union et Cie, Societe Francaise de Recherche Medical, Suresnes, France

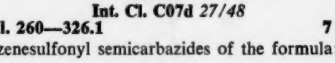
No Drawing. Filed Jan. 27, 1972, Ser. No. 221,377

Claims priority, application Great Britain, Feb. 15, 1971, 4,638/71

Int. Cl. C07d *27/48*

U.S. Cl. 260—326.1 **7 Claims**

Benzenesulfonyl semicarbazides of the formula:



wherein Het is a bicyclic nitrogen containing heterocyclic radical bonded to NH by its nitrogen atom.

These compounds possess microcirculation-improving, fibrinolytic and platelet adhesiveness and aggregation decreasing properties.

3,810,915
PROCESSES AND INTERMEDIATES FOR BENZINDENES

Andor Furst, Basel, Paul Buchschacher, Arlesheim, Dieter Kagi, Allschwil, Marcel Muller, Frenkendorf, Werner Meier, Bottmingen, and Erich Widmer, Arlesheim, Switzerland, assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

No Drawing. Original application Nov. 19, 1969, Ser. No. 878,180, now abandoned. Divided and this application May 24, 1972, Ser. No. 256,555
Claims priority, application Switzerland, Nov. 19, 1968, 17,224/68
Int. Cl. C07d *13/04*
U.S. Cl. 260—340.9 **1 Claim**

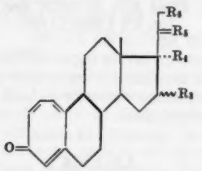
Benz[e]indene derivatives and intermediates therefor have been prepared by various processes starting from hexahydroindane derivatives. The benz[e]indene end products belong to a known class of compounds and are useful as intermediates in the synthesis of steroidal compounds.

3,810,916
PROCESS FOR THE MANUFACTURE OF STEROID TROPONES

Georg Anner, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed July 8, 1969, Ser. No. 840,026
Claims priority, application Switzerland, July 19, 1968, 10,816/68
Int. Cl. C07c *171/02*; C07d *13/00*
U.S. Cl. 260—340.9 **12 Claims**

The invention concerns the new process for the manufacture of known or new steroid tropones by dehydrogenating a 4-oxo-19-nor-A-homo-steroid-1,5(10)-diene with periodic acid or a salt thereof or with a heavy metal acylate and the new compounds of the formula



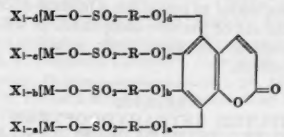
wherein R_3 is hydrogen or methyl, R_4 stands for hydrogen or a free or esterified hydroxyl group, R_5 represents a free or ketalized oxo group and R_6 is hydrogen, a free, esterified or etherified hydroxy group having a gestagenic, ovulation inhibiting, antiandrogenic or diuretic effect.

3,810,917
OXYOMEGASULFOHYDROCARBON-DI-YL-COUMARINS

Frank Passal, Detroit, Mich., assignor to M & T Chemicals Inc., Greenwich, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 683,035, July 31, 1967, which is a division of application Ser. No. 420,172, Dec. 21, 1964, now Patent No. 3,367,854. This application Dec. 2, 1970, Ser. No. 94,633
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 R **21 Claims**

This invention relates to novel processes and to novel oxyomegasulfohydrocarbon-di-yl coumarins wherein the hydrocarbon moiety contains at least 2 carbon atoms and the oxyomegasulfohydrocarbon-di-yl group is substituted on the carbocyclic nucleus of the coumarin group, typically having the formula



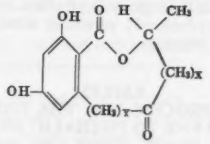
wherein X is an inert substituent, M is a cation, R is a hydrocarbon-di-yl group containing at least 2 carbon atoms, and *a*, *b*, *c*, and *d* are each integers less than 2, the sum of *a*, *b*, *c*, and *d* being at least 1. The novel compositions are useful in nickel plating processes.

3,810,918
SYNTHESIS OF ZEARALANONE

Wilbert Herbert Urry, Chicago, Ill., and Guy Towns Mullenbach, Berkeley, Calif., assignors to Commercial Solvent Corporation, Terre Haute, Ind.

No Drawing. Filed Apr. 25, 1972, Ser. No. 247,344
Int. Cl. C07d *9/00*
U.S. Cl. 260—343.2 F **1 Claim**

This invention provides a new synthesis for zearalanone and for related compounds having more or fewer carbon atoms in the non-aromatic ring than does zearalanone, which related compounds and zearalanone are represented by the formula



wherein X is an integer having a value from 2 to 6 inclusive and Y is an integer having a value from 2 to 8 inclusive. It also provides for new methods for making compounds useful in the synthesis of zearalanone and related compounds.

The new compounds useful as intermediates are

2,7-octadienoic acid;
methyl 2,7-octadienoate;
sodium ethyl 6-(4-pentenyl)-β-dihydroresorcylate;
ethyl 6-(4-pentenyl)-β-dihydroresorcylate;
sodium methyl 6-(4-pentenyl)-β-dihydroresorcylate;
methyl 6-(4-pentenyl)-β-dihydroresorcylate;
methyl 3-bromo-6-(4-pentenyl)-β-dihydroresorcylate;
methyl 6-(4-pentenyl)-β-resorcylate;
ethyl 6-(4-pentenyl)-β-resorcylate;
ethyl 6-(4-pentenyl)-β-resorcylate dibenzyl ether;
tetrahydropyran-2-yl 4-penten-2-yl ether;
ethyl 6-(6-oxo-10-tetrahydropyran-2-xyloxyundecyl)-β-resorcylate dibenzyl ether; and
6-(10-hydroxy-6-oxoundecyl)-β-resorcylic acid dibenzyl ether.

Methods for preparing these intermediates are also disclosed.

3,810,919
CYCLOBUTENE PHOSPHORIC ACID ESTERS

Beat Böhner and Kurt Rüfenacht, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Nov. 17, 1967, Ser. No. 683,784, now Patent No. 3,600,474. Divided and this application Apr. 28, 1971, Ser. No. 50,007
Int. Cl. C07d *7/24*
U.S. Cl. 260—345.2 **3 Claims**

New phosphoric acid esters which contain as esterifying radical a cyclobutenol radical which is fused to a ring

system are produced from novel intermediates which are α-halogeno-cyclobutanones fused to a ring system. The new esters are useful as pesticides; a method of controlling pests with the aid of the new compounds as well as pesticidal compositions containing them as active ingredients are also described.

3,810,920

2 - SUBSITUTED TETRAHYDROPYRAN AND 2-SUBSTITUTED TETRAHYDROFURAN-2-PEROXY COMPOUNDS

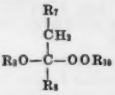
Richard Anthony Bafford, Tonawanda, and Leonard Ernest Korczykowski and Orville Leonard Magelic, Buffalo, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Original application Oct. 10, 1966, Ser. No. 585,295, now Patent No. 3,576,826, dated Apr. 27, 1971. Divided and this application Apr. 6, 1970, Ser. No. 31,059

Int. Cl. C07d *5/04, 7/04*

U.S. Cl. 260—345.8 7 Claims

Ether peroxides of the formula



having low thermal stability due to the presence of an alkoxy group (R_3O—) on the same carbon atom to which the peroxy (—OO—) group is attached, such as bis-2,2'-(2-methyl-tetrahydrofuryl) peroxide, which are useful as polymerization initiators.

3,810,921

CATALYTIC PROCESS FOR THE OXIDATION OF ORTHOXYLENE TO PHTHALIC ANHYDRIDE

James Michael Maselli, Ellicott City, and Gwan Kim, Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 17, 1970, Ser. No. 47,136

Int. Cl. C07c *63/02*

U.S. Cl. 260—346.4 5 Claims

Oxidation of orthoxylene to phthalic anhydride with a catalyst composed of vanadium oxide, potassium pyrosulfate, and antimony oxide on a titania carrier promoted with promotional amounts of chromia. The catalyst can be used either in fluid or fixed bed systems.

3,810,922

SULFUR-CONTAINING 4-HYDROXYCOUMARINS AND THEIR SALTS

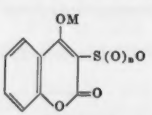
Joseph E. Dunbar, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 18, 1972, Ser. No. 316,419

Int. Cl. C07d *7/30*

U.S. Cl. 260—343.2 R 19 Claims

Invention concerns sulfur-containing 4-hydroxy-coumarins and their alkali metal salts of the formula



wherein M is hydrogen or alkali metal, R is alkyl, ω-(cyclohexyl)-n-lower alkyl, benzyl, halobenzyl, lower alkylbenzyl, (trifluoromethyl)benzyl, nitrobenzyl, allyl, haloallyl, phenyl-lower alkyl or naphthyl-lower alkyl, and *n* is 0, 1 or 2. The compounds are prepared by reacting 4-hydroxycoumarin with a thiolsulfonate in an organic medium and recovering the product. The compounds are useful as plant growth stunters and as antimicrobial agents.

3,810,923

MONOESTER DERIVATIVES OF OXALOCITROLACTONE

Richard H. Wiley, New York, N.Y., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Mar. 2, 1972, Ser. No. 231,380

Int. Cl. C07d *5/10*

U.S. Cl. 260—343.6 1 Claim

The monoester derivatives of oxalocitrolactone are useful as raw materials for the production of citric acid and are prepared by heating triester derivatives of the lactone in the presence of concentrated mineral acid and evaporating the solution until the desired product crystals are formed.

3,810,924

5-DIHYDROCORIOLIN C

Hamao Umezawa, Tomio Takeuchi, and Nobuyoshi Shimada, Tokyo, Yuya Nakayama, Yono, and Mamoru Kunishima, Tokyo, Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Dec. 19, 1972, Ser. No. 316,583

Claims priority, application Japan, Dec. 20, 1971, 46/103,509

Int. Cl. C07d *1/18*

U.S. Cl. 260—348 C 1 Claim

5-dihydrocoriolin C is obtained by cultivating microorganisms belonging to basidiomycetes and being capable of producing 5-dihydrocoriolin C in a medium appropriate for the production of 5-dihydrocoriolin C under aerobic conditions thereby to produce 5-dihydrocoriolin C in the medium and recovering it from the medium. 5-dihydrocoriolin C is a novel substance, but has no antibacterial or antitumor effect by itself, but coriolin C and 2'-dehydrocoriolin C obtained by oxidation of 5-dihydrocoriolin C have an antibacterial effect upon *Staphylococcus aureus, Bacillus subtilis,* etc., and also has a life-prolonging effect upon Ehrlich ascites tumor on mouse or mouse leukemia L-1210.

3,810,925

STABILIZED HEAT CURABLE SILICONE ELASTOMERS

George Juris Viksne, Adrian, Mich., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Filed Jan. 2, 1973, Ser. No. 319,952

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 SB 12 Claims

Silicone elastomers having improved heat stability, compression set and resistance to reversion may be obtained by incorporating metal stannates in heat curable organopolysiloxane compositions.

3,810,926

21-DIALKYLAMINO-20-METHYLPREGNA-4,17(20)-DIEN-3-ONES AND CONGENERS

George R. Lenz, Glenview, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed July 30, 1973, Ser. No. 383,527

Int. Cl. C07c *169/36*

U.S. Cl. 260—397.1 9 Claims

Preparation of 21-dialkylamino-20-methylpregna-4,17 (20)-dien-3-ones and congeners, and the valuable antibiotic and antiulcerogenic properties of said amines are disclosed.

3,810,927

3-OXYGENATED - 30 - METHYLOLEAN-12-EN-30-ONES AND 11-OXO DERIVATIVES THEREOF

John S. Baran, Morton Grove, and Chi-Dean Liang, Glenview, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,275

Int. Cl. A61k *27/00;* C07c *49/54, 49/56*

U.S. Cl. 260—410 10 Claims

3β-acetoxy-18β-olean-12-en-30-oic acid and its 11-oxo derivatives are converted to the acid chloride and methyl-

ated to afford the 3β-acetoxy-30-methyl-18β-olean-12-en-30-one and 3β-acetoxy-30-methyl-18β-olean-12-ene-11,30-dione compounds, respectively. Those intermediates then are treated with base to produce the 3β-hydroxy derivatives, which are oxidized to the 3-oxo derivatives. The 3β-hydroxy and 3-oxo compounds exhibit valuable pharmacological, e.g. anti-inflammatory and anti-hypertensive, activity.

3,810,928
N-ARYLTHIO S-HYDROCARBYL THIOCARBAMATES

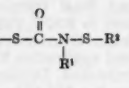
Melancthon S. Brown, deceased, late of Berkeley, Calif., by Gustave K. Kohn, administrator, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed June 1, 1971, Ser. No. 150,860

Int. Cl. C07c *155/08*

U.S. Cl. 260—455 A **5 Claims**

Compounds of the formula



wherein R is alkyl, alkenyl, alkynyl or phenyl optionally substituted with halogen or alkyl groups; R^1 is hydrogen or alkyl; R^2 is phenyl optionally substituted with halogen or alkyl groups, find use as nematocides.

3,810,929
POLYCARBOXYLIC ACID-BRIDGED THIO-METHYLENEPHENOL ANTIOXIDANTS

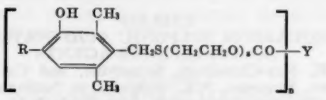
John Song, Bound Brook, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 5,089, Jan. 22, 1970. This application Aug. 24, 1972, Ser. No. 283,601

Int. Cl. C07g *1/00*

U.S. Cl. 260—455 R **7 Claims**

Thiomethylenephenol compounds are provided wherein from two to four hindered phenol radicals having thiomethyl substituents meta to their hydroxy groups are joined, either directly or through interposed ethoxy groups, to the carbonyl radicals of an organic polycarboxylic acid. These compounds have the formula:



wherein R is a branched chain alkyl group containing three to about twelve carbon atoms, *z* is zero or one, *n* is 2, 3, or 4, and Y is the residue of the organic carboxylic acid $Y(COOH)_n$. They are antioxidants for oxygen-sensitive organic materials, particularly polyolefins of 2–6 carbon atoms such as polypropylene plastics. They are prepared by condensing from 2 to 4 moles of a 3-mercaptomethyl-2,4-dimethyl-6 branched-chain alkylphenol with the chloride or bromide of an organic dicarboxylic, tricarboxylic or tetracarboxylic acid, preferably in the presence of an acid acceptor, or by first condensing the corresponding 3-chloromethylphenol with 2-mercapto ethanol and esterifying the resulting condensate with the polycarboxylic acid halide.

3,810,930
BIS-(BETA-AMINO ACRYLYL THIOCARBOXYLATE) OF CYCLIC HYDROCARBON ALCOHOLS

Richard G. Parker, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application Oct. 29, 1971, Ser. No. 193,998. Divided and this application May 7, 1973, Ser. No. 357,866

Int. Cl. C07c *153/07*

U.S. Cl. 260—455 R **3 Claims**

Bis-(β-aminoacrylyl) compounds are prepared in a process comprising first reacting a cyclic hydrocarbon with a cyanoacetylating agent to form an intermediate, and then reacting the intermediate with an alcohol and a hydrogen halide followed by the addition of sodium bicarbonate. The compounds are particularly useful as heat stabilizers for chlorine-containing polymers, especially polyvinyl chloride.

3,810,931
CITRIC ACID DERIVATIVES

Robert William Guthrie, Fairfield, James Guthrie Hamilton, Nutley, Richard Wightman Kierstead, North Caldwell, and O. Neal Miller, Montclair, N.J., and Ann Clare Sullivan, New York, N.Y., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,334

Int. Cl. C07c *143/68*; C07d *1/20, 1/22*

U.S. Cl. 260—456 R **7 Claims**

Epoxyaconitic acid and esters thereof are useful for the control of lipogenesis.

3,810,932
STYRYL DYESTUFFS

Nalin Binduprasad Desai and Ponnusami Jayaraman, Goregaon-Bombay, India, and Visvanathan Ramanathan, Basel, and Klaus Artz, Muttenz, Switzerland, Navnitrai Nagarji Naik, Goregaon-Bombay, India, and Walter Jenny, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 806,291, Mar. 11, 1969, now Patent No. 3,679,657, dated July 25, 1972. This application Dec. 15, 1971, Ser. No. 208,417

Claims priority, application Switzerland, Mar. 18, 1968, 3,958/68

Int. Cl. C07c *121/70*

U.S. Cl. 260—465 D **3 Claims**

Styryl dyestuffs containing at least one group of formula —X—CO—NR—SO_2—alkyl, wherein R is hydrogen alkyl or cycloalkyl and X is an oxygen or sulphur atom or a group of formula —NR_1—, wherein R_1 is a hydrogen alkyl or cycloalkyl. The dyestuff dye polyester fibers in fast shades.

3,810,933
BIS(3-CHLORO-4-HYDROXYPHENYL) MALONONITRILE

Eugene G. Banucci, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed May 30, 1972, Ser. No. 257,637

Int. Cl. C07c *121/74*

U.S. Cl. 260—465 F **1 Claim**

The compound bis(3-chloro-4-hydroxyphenyl) malononitrile and a method for making the same based on the reaction of 2-chlorophenol and pyruvonitrile are described. This compound can be reacted with diacyl halides or with diphenyl carbonate or phosgene to form polyester resins useful in molding and film-forming applications.

3,810,934
PROCESS FOR THE PRODUCTION OF CYANOACETYLCARBAMATES
Colm O'Murchu, Visp, Switzerland, assignor to Lonza Ltd., Gampel, Valais, Switzerland
No Drawing. Filed Aug. 31, 1972, Ser. No. 285,357
Claims priority, application Switzerland, Sept. 24, 1971, 13,973/71
Int. Cl. C07c *121/02, 121/42, 121/52*
U.S. Cl. 260—465 D **12 Claims**

This invention involves a process of producing a R_1 substituted - N - cyanoacetyl-N-R_2 substituted-carbamate, which has the formula:

$$CNCH_2CONR_2COOR_1$$

wherein R_1 is a lower alkyl group having 1 to 10 carbon atoms, an aryl group, an aralkyl group or an alkaryl group, and wherein R_2 is a hydrogen atom, a lower alkyl group having 1 to 10 carbon atoms, an aryl group, an aralkyl group or an alkaryl group. The process includes reacting cyanoacetic acid with a R_1 substituted-N-R_2 substituted-carbamate which has the formula:

$$NHR_2COOR_1$$

wherein R_1 and and R_2 are defined as above. The reaction is conducted in the presence of phosphorus oxychloride, which is a condensation agent, and in the presence of at least one aprotic solvent and dimethylformamide. Examples of aprotic solvents are benzene, chloroform, toluene, ethyl acetate and acetonitrile. The cyanoacetyl carbamate is isolated from the reaction mass.

3,810,935
PROCESS FOR PRODUCING MALONONITRILE
Willy Leimgruber, Montclair, and Manfred Weigele, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application June 1, 1970, Ser. No. 42,545, now Patent No. 3,709,922, dated Jan. 9, 1973. Divided and this application June 14, 1972, Ser. No. 262,880
Int. Cl. C07c *121/02, 121/22*
U.S. Cl. 260—465.8 R **5 Claims**

This invention is directed to a process for the preparation of malononitrile and cyanoacetamide from the reaction product of a dialkyl acetal of a dialkyl formamide and acetonitrile including intermediates therein.

3,810,936
2-FORMYL 3-OXYGENATED 5-OXYCYCLOPENTANEHEPTANOIC ACIDS, ESTERS CORRESPONDING AND DERIVATIVES
Masateru Miyano, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.
No Drawing. Continuation-in-part of abandoned application Ser. No. 799,965, Feb. 17, 1969. This application Oct. 8, 1971, Ser. No. 187,853
Int. Cl. C07c *61/36*
U.S. Cl. 260—468 K **7 Claims**

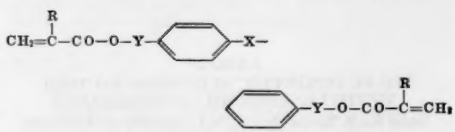
The condensation of dimethyl 3-oxoundecane-1,11-dioate with styrylglyoxal affords 14-phenyl-9,12-dioxo-11-hydroxytetradec-13-enoic acid, which is cyclized to afford 3-hydroxy-5-oxo-2-styrylcyclopent - 1 - eneheptanoic acid. Hydroxylation of the styryl double bond affords the corresponding 2-(α,β-dihydroxyphenethyl) derivative, which is cleaved to afford the instant 2-formyl compounds. The racemic 2-styryl-3-hydroxy compounds are resolved and subsequently hydroxylated and cleaved to form the optically active 2-formyl derivatives. The instant compounds are useful as anti-microbial agents and also as intermediates to prostanoic acid derivatives and their optically active isomers which exhibit anti-microbial, pepsin-inhibitory, hypotensive and smooth muscle-contracting properties.

3,810,937
PURIFICATION OF CARBOXYLIC ACIDS
Vincent P. Kuceski, Chicago Heights, Ill., assignor to The C. P. Hall Company, Stow, Ohio
Filed Sept. 15, 1970, Ser. No. 72,488
Int. Cl. C07c *55/02, 69/34*
U.S. Cl. 260—485 R **23 Claims**

Dicarboxylic acids in water solutions are purified and recovered by water-immiscible solvents. The solvent solutions of dicarboxylic acids are treated in various ways to recover, separate, and purify dicarboxylic acids. The aqueous phase remaining by extraction of dicarboxylic acids may be re-used by cycling back to the process in order to recover economic values of reactants and catalysts and to avoid buildup of polluting bleedstreams. Solvents and alcohols are recovered from aqueous and/or non-aqueous phases and are recycled in the process.

3,810,938
NOVEL DIACRYLIC AND DIMETHACRYLIC ACID ESTERS
Werner Schmitt and Robert Purrmann, Starnberg, and Peter Jochum and Wolf Dieter Zahler, Hechendorf, Germany, assignors to ESPE Fabrik Pharmazeutischer Praparate G.m.b.H., Oberbayeen, Germany
No Drawing. Original application May 14, 1969, Ser. No. 824,701, now abandoned. Divided and this application Feb. 11, 1972, Ser. No. 225,671
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 R **3 Claims**

New compounds of formula



in which R is H or —CH_3, X is an alkylidene or the —SO_2— group, Y is an oxyalkylene group having between 2 and 5 carbon atoms, or an alkylidene group having between 1 and 5 carbon atoms are prepared. The compounds are intermediates for the preparation of polymers with a high degree of hardness and chemical stability and may be used for the preparation of a variety of articles, such as shaped articles coatings, cements, artificial teeth, dental fillings and other prosthetic articles.

3,810,939
FLUOROCARBON SULFONIC ACID WATER AND OIL REPELLENCY AGENTS
Dilip K. Ray-Chaudhuri, Somerville, and Carmine P. Iovine, Somerset, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 18,720, Mar. 11, 1970, which is a continuation-in-part of application Ser. No. 755,814, Aug. 28, 1968, now abandoned. This application Aug. 9, 1972, Ser. No. 278,957
Int. Cl. C07c *143/16*
U.S. Cl. 260—513 R **7 Claims**

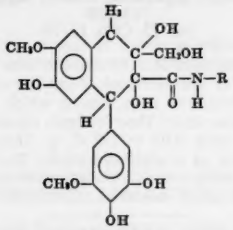
Segmented fluorocarbon sulfonic acids comprising the reaction product of a perfluoroalkyl-alkyl halide and a sulfonation reagent as well as the acid anhydrides, metal salts, sulfonyl halides and sulfonamides thereof. The resulting compositions possess unique surface active properties and thus are applicable as effective emulsifying agents. They may also be used as intermediates in the preparation of water and oil repellency agents.

3,810,940
PROCESS FOR PRODUCING ACID CHLORIDES
Charles Frank Hauser, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Apr. 7, 1972, Ser. No. 242,176
Int. Cl. C07c *51/58, 63/22, 63/30*
U.S. Cl. 260—544 M 5 Claims

Acid chlorides are produced by the reaction of intramolecular anhydrides of carboxylic acids with phosgene using a carboxamide compound as the catalyst in the presence of an inert organic aromatic solvent.

3,810,941
PLICATAMIDES
Richard Frank Buchholz and Marten Reintjes, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
No Drawing. Filed Dec. 18, 1972, Ser. No. 316,056
Int. Cl. C07c *103/26*
U.S. Cl. 260—559 R 3 Claims

A plicatamide of the structural formula



wherein R is selected from the group consisting of ethyl and n-propyl. The compounds are prepared by reacting methyl plicatate with a primary amine in aqueous solution, acidifying and recovering the plicatamide. The compounds exhibit excellent antioxidant activity for edible fats and oils and good lipid solubility.

3,810,942
ACETAMIDO NAPHTHYL OR ACETOPHENONE COMPOUNDS AND DERIVATIVES THEREOF
Henry E. Meunier, Grenoble, Isere, and Pierre L. Eymard, Fontaine, Isere, France, assignors to Laboratoires J. Berthier, Grenoble, France
No Drawing. Filed May 24, 1968, Ser. No. 786,509
Claims priority, application France, May 24, 1967, 107,590
Int. Cl. C07c *103/32, 103/34*
U.S. Cl. 260—562 B 8 Claims

Dipropylacetoxy and dipropylacetamido naphthyl or acetophenone compounds including the halogenated derivatives of the naphthyl compounds are disclosed as tranquilizing agents.

3,810,943
CYCLOPENTANE DIALDEHYDES
Geraint Jones, Macclesfield, England, and Ralph Alexander Raphael, Glasgow, Scotland, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Dec. 13, 1971, Ser. No. 207,531
Claims priority, application Great Britain, Jan. 6, 1971, 662/71
Int. Cl. C07c *47/52*
U.S. Cl. 260—600 3 Claims

The invention relates to a novel process for the manufacture of a prostaglandin or a prostaglandin-like compound which comprises the oxidative cleavage of a bicyclo-[2,2,1]heptene derivative to a cyclopentane dialdehyde, which is converted to a prostaglandin or a prostaglandin-like compound by conventional means, and also relates to the novel bicyclo[2,2,1]heptene derivatives and cyclopentane dialdehydes used in the above process.

3,810,944
ETHYNYLINDENYL COMPOUNDS AND DERIVATIVES THEREOF
Julius Diamond, Lafayette Hill, and George H. Douglas, Paoli, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.
No Drawing. Filed Nov. 15, 1972, Ser. No. 306,702
Int. Cl. C07c *43/20*
U.S. Cl. 260—612 R 5 Claims

Novel ethynylindenyl compounds and derivatives are described. Their use in the treatment of inflammation is also disclosed.

3,810,945
PROCESS FOR PREPARING A METHANO-POLYCYCLIC HYDROQUINONE
Arthur W. Carlson, Crystal Lake, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Original application Mar. 18, 1969, Ser. No. 714,023. Divided and this application Feb. 15, 1972, Ser. No. 226,507
Int. Cl. C07c *39/24*
U.S. Cl. 260—619 F 10 Claims

A process for preparing a methano-polycyclic hydroquinone which comprises rearranging a corresponding methano-polycyclic quinone under isomerization conditions in the presence of an inert solvent and water and thereafter recovering the desired hydroquinone product.

3,810,946
PURIFICATION OF PHENOL
Chuen Y. Yeh, Succasunna, and Harry E. Ulmer, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Nov. 3, 1972, Ser. No. 303,558
Int. Cl. C07c *37/38*
U.S. Cl. 260—621 A 12 Claims

Phenol produced by decomposition of cumene hydroperoxide is purified by heating it with hydrobromic or hydroiodic acid, or their water-soluble salts, followed by distillation. This treatment not only reduces carbonyl-bearing impurities, but also reduces methylbenzofuran impurities.

3,810,947
ALKYLATION OF AROMATIC COMPOUNDS
Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Mar. 31, 1972, Ser. No. 240,278
Int. Cl. C07c *25/14*
U.S. Cl. 260—651 R 9 Claims

Aromatic compounds may be alkylated with certain polychloro-substituted alkenes containing one tertiary carbon atom and at least one chlorine atom on a doubly-bonded carbon atom in the presence of a Friedel-Crafts catalyst to produce an alkylated aromatic compound in which the product contains a chlorinated substituent containing only primary and secondary carbon atoms in the chain.

3,810,948
CATALYTIC PRODUCTION OF 1,1-DIFLUOROETHANE
Johann Nikolaus Meussdoerffer, Blecher, and Hans Niederprum, Monheim, Rhineland, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 20, 1972, Ser. No. 273,654
Claims priority, application Germany, Aug. 10, 1971, P 21 39 993.9
Int. Cl. C07c *17/08, 19/08*
U.S. Cl. 260—653.6 10 Claims

In the production of 1,1-difluoroethane wherein acetylene is reacted in liquid or gas phase with hydrogen fluo-

ride, the improvement which comprises effecting the reaction in the presence of

a sulfonic acid of the formula XSO_3H
in which X is a fluorine atom or a perfluorinated alkyl radical of up to about 12 carbon atoms, and

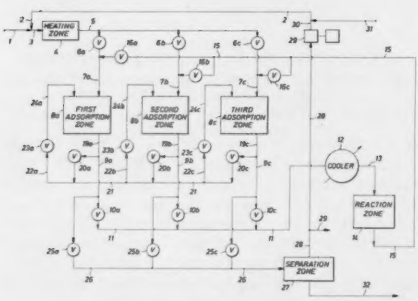
a complex fluoride of the formula A_nZF_m
in which A is a metal or an optionally substituted ammonium radical, Z is an element of the group III to VIII of the periodic system of elements, *n* is 1, 2 or 3 and *m* is 4 or 6.

Preferably A_nZF_m is an alkali metal or alkaline earth metal tetrafluoroborate and is present in about 0.01 to 5% of the weight of the sulfonic acid employed.

3,810,949
INTERMOLECULAR ADDITION
Lawrence H. Shepherd, Jr., Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.
No Drawing. Continuation-in-part of abandoned application Ser. No. 888,071, Dec. 24, 1969. This application Sept. 25, 1972, Ser. No. 291,647
Int. Cl. C07j *3/02*
U.S. Cl. 260—665 G **51 Claims**

Hydrocarbyl magnesium compounds ($RMgX$; R_2Mg) react with polycyclic compounds containing one or more etheno bridges (e.g., bicyclo[2.2.1]hept-2-ene; bicyclo-[2.2.1]hepta-2,5-diene) to produce various novel polycyclic organomagnesium compounds. These in turn can be subjected to various reactions to produce other products.

3,810,950
PROCESS FOR CONVERTING REACTANT INTO PRODUCT INCLUDING ADSORPTION-DESORPTION CYCLE FOR RECYCLE OF UNREACTED REACTANT
Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., New York, N.Y.
Filed Dec. 13, 1971, Ser. No. 207,278
Int. Cl. C07c *5/10*
U.S. Cl. 260—667 **14 Claims**



A process for increasing the conversion of a reactant hydrocarbon into a desired product wherein reactant contained in a reaction mixture is partially converted into desired product. Such process comprises adsorbing, at a relatively low temperature, reactant hydrocarbon from the reaction effluent stream into a solid adsorbent selective for such reactant and subsequently desorbing reactant from the solid adsorbent employing reaction charge at an elevated temperature. The desorbed reactant is returned to the reaction for conversion into additional amounts of desired product. Such a process has particular applicability for such reactions as isomerization where an equilibrium exists between reactant and product.

3,810,951
EXTRACTION PROCESS
Michael D. Riordan, Beacon, and David G. Weetman, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed May 11, 1970, Ser. No. 36,388
Int. Cl. C07c *11/00*
U.S. Cl. 260—677 A **2 Claims**

Objectionable impurities are removed from a paraffin dehydrogenate by extracting with a polar solvent such as N,N-dimethylformamide with the result that an acceptably colored sulfonate product can be prepared from the extracted material.

3,810,952
LIQUID COPOLYMERS OF 1,3-BUTADIENE AND 1-MONOOLEFINS, THEIR PREPARATION AND USES
Jean-Pierre Durand, Chatou, and Francois Dawans, Bougival, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants
No Drawing. Filed Sept. 19, 1972, Ser. No. 290,405
Claims priority, application France, Sept. 23, 1971, 7134350
Int. Cl. C07c *11/00*
U.S. Cl. 260—677 R **9 Claims**

Liquid copolymers of 1,3-butadiene with one or more 1-monoolefin(s) are disclosed. They are constituted of olefinic and butadiene units, among which at least 80% cis-1,4 butadiene units. Their intrinsic viscosity at 30° C. in toluene is from 0.02 to 1.0 dl./g. Their preparation involves the use as catalyst of a nickel fluorocarboxylate halide, particularly nickel trifluoroacetate chloride. They are useful for many industrial applications.

3,810,953
DEHYDROGENATION OF ORGANIC COMPOUNDS
Robert S. Cichowski, San Luis Obispo, Calif., assignor to Phillips Petroleum Company
No Drawing. Filed Jan. 3, 1972, Ser. No. 215,147
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 E **3 Claims**

Organic compounds are oxidatively dehydrogenated in the presence of a solid catalyst comprising cobalt, phosphorus, combined oxygen and at least one metal from the group indium, magnesium, aluminum, thorium, yttrium, cadmium, lead, beryllium, zinc, manganese, silver, cerium, zirconium, boron and calcium.

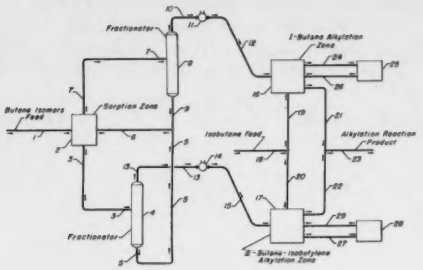
3,810,954
OXIDATIVE DEHYDROGENATION PROCESSES
Brent J. Bertus, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Apr. 10, 1972, Ser. No. 242,373
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 E **4 Claims**

Organic compounds, particularly hydrocarbons, are oxidatively dehydrogenated to more unsaturated compounds by contact, under reaction conditions, with air, steam and a calcined solid catalyst composition comprising tungsten, tin and at least one metal of the iron subgroup of Group VIII. In one embodiment, isopentene is converted to isoprene over a nickel/tungsten/tin/oxygen catalyst at a conversion of 36 percent and with a modivity (modified selectivity) of 72 percent.

3,810,955
BUTENE SEPARATION AND ALKYLATION
Jay E. Sobel, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 1, 1971, Ser. No. 203,800
The portion of the term of the patent subsequent to Oct. 2, 1990, has been disclaimed
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.49 **6 Claims**

A process for producing an alkylation reaction product from an isoparaffin and an olefinic reactant containing 1-

butene, 2-butene and isobutylene by separating the reactant, using a crystalline aluminosilicate, to provide a 1-butene stream and a 1-butene-free stream and alkylating the 1-butene-free stream at 2-butene-isobutylene alkylation conditions. The 1-butene stream is separately alkylated at 1-butene alkylation conditions.



3,810,956

ANTI-ELECTROSTATIC POLYAMIDES CONTAINING A URETHANE DERIVATIVE OF A POLYETHER

Isao Kimura and Fumimaro Ogata, Osaka, and Koichiro Ohtomo, Settsu, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Apr. 20, 1970, Ser. No. 30,284
Claims priority, application Japan, Apr. 24, 1969, 44/32,207, 44/32,208; July 12, 1969, 44/55,318
Int. Cl. C08g *20/20*
U.S. Cl. 260—857 R **23 Claims**

A synthetic thermoplastic fiber-forming polymer having durable anti-electrostatic and hydrophilic properties to withstand repeated launderings, which comprises polyamide, and which uniformly contains 0.1–30% by weight based on said polyamide of at least one urethane derivative of polyether which is a reaction product of a diisocyanate and a mono- or di-ol type polyalkylene-ether or its derivative. Processes for its manufacture and fibers comprising the polymer have been also proposed.

3,810,957

SELECTIVELY HYDROGENATED BLOCK COPOLYMER-POLYSTYRENE BLENDS

Hans E. Lunk, Menlo Park, Calif., assignor to Shell Oil Company, Houston, Tex.

No Drawing. Continuation-in-part of application Ser. No. 62,698, Aug. 10, 1970, which is a continuation of application Ser. No. 463,892, June 14, 1965, both now abandoned. This application Feb. 7, 1972, Ser. No. 224,316
Int. Cl. C08f *41/12*
U.S. Cl. 260—876 B **10 Claims**

Molding compositions having high impact strength and improved oxidative stability are prepared by physically blending a polymer of at least one monovinyl aromatic compound with a block copolymer prepared by selectively hydrogenating to substantially complete saturation the diene portion of a block copolymer having at least two polymer blocks of a monovinyl arene separated by at least one polymer block predominately of a conjugated diene.

This invention relates to high impact thermoplastic compositions of polymers of monovinyl aromatic hydrocarbons and to a process for preparing them. More particularly, the invention provides a process for preparing high impact thermoplastic molding compositions, especially polystyrene, having improved oxidative stability.

3,810,958

METHOD OF OBTAINING SMALL PARTICLE SIZE POLYMERS AND COPOLYMERS OF VINYL CHLORIDE BY BULK POLYMERIZATION

Akio Takahashi, Amherst, and Anthony L. Lemper, Tonawanda, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed May 8, 1972, Ser. No. 251,098
Int. Cl. C08f *3/30, 15/00*
U.S. Cl. 260—880 R **6 Claims**

In a process of bulk polymerization involving two-stage polymerization wherein high speed agitation is used during the first stage and slow speed agitation is used in the second stage, the polymerization in the first stage is conducted in contact with a styrene-butadiene rubber polymer. By the novel polymerization methods, small particle size polyvinyl chloride homopolymers or copolymers are produced which are useful as extender resins in plastisols.

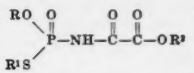
3,810,959

N-(ALKOXYALYL)-o-ALKYL-S-ALKYLTHIO-PHOSPHORS-AMIDES

Edmund Jeremiah Gaughan, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Feb. 12, 1973, Ser. No. 331,453
Int. Cl. A01n *9/36;* **C07f** *9/24*
U.S. Cl. 260—941 **4 Claims**

The compounds of this invention are those having the formula



in which R, R^1 and R^2 are lower alkyl and their use as insecticides.

3,810,960

PHOSPHORUS-CONTAINING MONOESTERS OF UNSATURATED DICARBOXYLIC ACIDS

William T. Gormley and Muchere C. Russ, Pittsburgh, Pa., assignors to Koppers Company, Inc.

No Drawing. Filed Nov. 9, 1972, Ser. No. 305,189
Int. Cl. C07f *9/40*
U.S. Cl. 260—952 **7 Claims**

Benzenephosphonic acid monoesters of glycol monoesters of ethylenically unsaturated dicarboxylic acids have been prepared by esterifying benzenephosphonic acid with the alcohol portion of an alkyleneglycol monoester with an unsaturated dicarboxylic acid. The novel esters are useful as flame retardant additives for thermoplastic and thermosetting resins.

3,810,961

PROCESS FOR PREPARING TRIS(2-HALOALKYL) PHOSPHITES

Philip M. Pivawer, Hamden, Conn., assignor to Olin Corporation

No Drawing. Filed Aug. 25, 1972, Ser. No. 283,974
Int. Cl. C07f *9/08*
U.S. Cl. 260—977 **15 Claims**

Tris(2-haloalkyl)phosphites are prepared by reacting a phosphorus trihalide with an alkylene oxide in the presence of a tertiary amine hydrohalide, a tetra-alkyl quaternary ammonium halide, or a mixture thereof. These tris (2-haloalkyl)phosphites are useful intermediates in the preparation of flame retardant phosphate esters.

ERRATUM

For Class 264—250 see:
Patent No. 3,811,045

3,810,962

METHOD OF MAKING A CARBIDE-GRAPHITE COMPOSITE NUCLEAR FUEL

William W. Martin, Donald H. Schell, and James M. Taub, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 25, 1972, Ser. No. 282,745

Int. Cl. G21c *21/00*

U.S. Cl. 264—.5 **3 Claims**

Composite nuclear fuel materials of the formula (U,Zr) C—C in which the ratio of U to Zr can be varied over rather wide ranges without significantly altering physical characteristics, as long as the overall carbide content is held constant. Optimum characteristics for fuel elements useful in nuclear propulsion reactors are exhibited by the composites containing 30 to 35 vol. percent carbide. Fuel elements of these composites are readily made by blending ZrC powder, UO_2 powder, graphite flour, carbon black, and a thermosetting resin in the appropriate ratios to provide the desired final product, extruding in a desired shape, curing, and subjecting the cured extrusion to a high-temperature heat treatment.

3,810,963

METHOD OF PREPARING A SYNTACTIC CARBON FOAM

Samuel T. Benton, Knoxville, and Charles R. Schmitt, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Oct. 29, 1971, Ser. No. 194,057

Int. Cl. B44d *5/12;* **C01b** *31/02*

U.S. Cl. 264—29 **1 Claim**

Syntactic carbon foam comprising hollow carbon microspheres in a carbon matrix is prepared by employing the steps of mixing hollow phenolic resin microspheres with a carbonizable resin binder, compacting the mixture, curing the binder while maintaining the mixture under a load corresponding to a pressure greater than ambient pressure, and then heating the mixture to convert the mixture of spheres and binder to carbon.

3,810,964

PROCESS FOR EXTRUDING A FOAMED CLOSED-CELL POLYOLEFIN EXTRUDATE SUBSTANTIALLY FREE FROM CELL COLLAPSE BY USE OF A BARRIER MATERIAL

Herbert A. Ehrenfreund, Madison, Conn., assignor to Polytech Systems, Inc., Madison, Conn.

No Drawing. Continuation-in-part of application Ser. No. 39,158, May 20, 1970. This application Sept. 20, 1971, Ser. No. 182,268

Int. Cl. B29d *27/00;* **C08f** *29/12*

U.S. Cl. 264—53 **4 Claims**

Preparation of a polyolefin foam by extruding a combination of materials including a chemically inert, particulate nucleation system, an expanding agent together with petroleum naptha which promotes foaming in a low pressure ambient, an ionomer, and a barrier material of high melt strength which improves the properties of the polymer and also serves during foaming as a blocking mechanism against post-extrusion cell collapse.

3,810,965

PROCESS OF PRODUCING A FOAMED RESIN SHEET

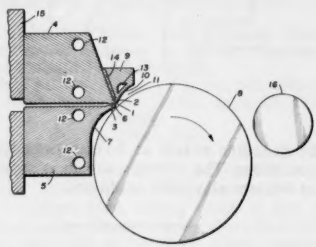
Durgacharan Sen, Cwmbran, Stanley J. Skinner, Newport, and William R. Foster, Wrexham, Wales, assignors to Monsanto Chemicals Limited, London, England

Filed Oct. 26, 1971, Ser. No. 192,465

Claims priority, application Great Britain, Nov. 3, 1970, 52,268/70; Feb. 18, 1971, 4,900/71; Sept. 20, 1971, 52,268/71

Int. Cl. B29d *27/00*

U.S. Cl. 264—53 **11 Claims**



The present invention is directed to a process for producing a sheet of foamed thermoplastic synthetic resin, which comprises extruding a foamable thermoplastic synthetic resin through a slit die orifice into an extention zone defined by a pair of opposing curved surfaces maintained at a temperature below the extrusion temperature, one of the surfaces being a convex surface that moves in the direction of extrusion and the other surface being concave, such that foaming of the resin occurs as it moves through the expansion zone and the curvatures and relative spacing of the surfaces being such that they compact the expanding and foaming resin and there is produced a foamed resin sheet.

3,810,966

METHOD OF CONTINUOUSLY SEALING AN INTERFACE BETWEEN TWO RELATIVELY MOVABLE MEMBERS

Edward Paul Tober, Richardson, Tex., assignor to Western Electric Company, Incorporated, New York, N.Y.

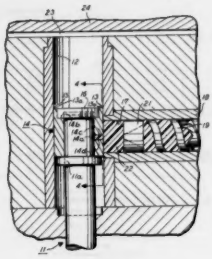
Filed July 10, 1972, Ser. No. 270,555

Int. Cl. B29g *2/00*

U.S. Cl. 264—262 **10 Claims**

The interface between two relatively movable members, such as a mold injection ram assembly and a cylinder in which the ram assembly is reciprocably mounted, is continuously sealed by forming a narrow, diagonal slot between the edges of a circular bushing and assembling the slotted bushing on the ram in the cylinder. On a first cycle of operation, molding material is forced into the slot to expand the bushing radially outward into tight-fitting sealing engagement with the cylinder. This may be accomplished as the assembled ram and bushing are being utilized to block the exit end of a material perform compacting chamber, or as the assembled ram and bushing are being advanced to inject a first material perform into a molding die. On subsequent cycles of operation, addi-

tional minute amounts of material are forced into the slot in the bushing to expand the bushing radially outward as the bushing wears and to maintain the bushing in tight-fitting sealing engagement in the cylinder.



3,810,967

PROCESS FOR RECOVERING COBALT FROM OXO REACTION PRODUCTS

Itaru Takasu, Arai, and Masaru Higuchi, Yoshito Hijioka, and Kyozo Arimoto, Ohimachi, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,192

Claims priority, application Japan, Sept. 14, 1970, 45/80,806, 45/80,808

Int. Cl. C01g *51/02*

U.S. Cl. 423—139 **7 Claims**

A process for recovering cobalt from an oxo reaction product, in which the oxo reaction product is contacted with (a) an iron material selected from the group consisting of iron, oxides, hydroxides and salts of iron or (b) an iron-containing mixture prepared by mixing an aqueous solution of a ferrous salt of a strong acid with an aqueous solution of an alkali metal or alkaline earth metal hydroxide, in which a double decomposition has been caused so as to produce ferrous hydroxide, in the presence of water, carbon monoxide and hydrogen. The cobalt present in said oxo reaction product is converted to a water-soluble iron salt of carbonyl cobaltate which is extracted to the aqueous phase. The aqueous is separated from said oxo reaction product. The soluble iron salt of carbonyl cobaltate in said aqueous phase is decomposed with a mineral acid or organic acid to convert it to cobalt carbonyl.

3,810,968

PROCESS FOR MANUFACTURING SULFUR DIOXIDE FROM AMMONIUM SULFATE

Philippe Renault, Noisy-le-Roi, Andre Deschamps, Chatou, and Claude Dezael, Maisons-Laffitte, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants

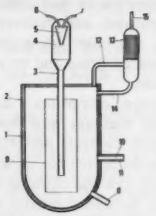
Filed May 23, 1972, Ser. No. 256,078

Claims priority, application France, May 27, 1971, 7119411

Int. Cl. C01b *17/50*; C01c *1/02*

U.S. Cl. 423—356 **25 Claims**

Ammonium sulfate is a material of low industrial value which cannot be rejected without risk of water pollution. This material is converted to useful compounds, SO_2 and NH_3, by the present process which comprises reacting at least stoichiometrical proportions of a reducing agent and ammonium sulfate at 150–400° C. The reducing agent may be sulfur, hydrogen sulfide, ammonium thiosulfate or carbon monoxide.



3,810,969

PROCESS FOR THE PRODUCTION OF CHLORINE DIOXIDE

Allan A. Schlumberger, Williamsville, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed June 22, 1971, Ser. No. 155,659

Int. Cl. C01b *11/02, 11/12*

U.S. Cl. 423—478 **6 Claims**

A process is described for preparing substantially pure chloric acid by reacting a metal chlorate salt with a cation exchange resin. The chloric acid is subsequently reduced to produce chlorine dioxide.

3,810,970

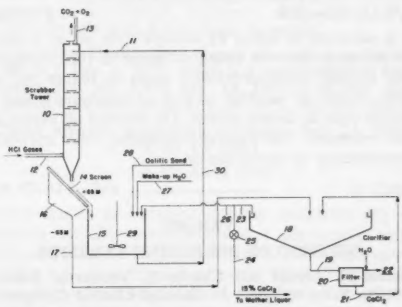
PROCESS FOR SCRUBBING HYDROGEN CHLORIDE FROM WASTE GASES AND SELECTIVE RECOVERY OF ANHYDROUS MAGNESIUM CHLORIDE

Walter R. McCormick, Salt Lake City, Utah, assignor to N L Industries, Inc., New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 219,095

Int. Cl. C01b *7/08*; C01f *5/30*

U.S. Cl. 423—498 **7 Claims**



Hot waste gases containing small amounts of hydrogen chloride plus additional combustion products including

carbon dioxide, nitrogen, oxygen and water vapor are scrubbed substantially free of the hydrogen chloride by contacting the hot gases with a fluid scrubbing medium comprising a slurry of oolitic sand and calcium chloride brine at a pH less than 7, whereby the hydrogen chloride in the gases is converted to additional calcium chloride brine which is separated and recovered from the fluid scrubbing medium, the latter being fortified by a minor portion of the recovered brine and recycled to scrub additional hot waste gases.

The system employed comprises a scrub tower in which the fluid scrubbing medium and hot waste gases are brought into intimate contact, preferably by countercurrent flow; and suitable means for separating and recovering the newly formed calcium chloride brine from the fluid scrubbing medium including means for recovering the oolitic sand and mixing it with make-up brine to form fresh fluid scrubbing medium which is recycled to the scrub tower.

3,810,971

METAL RECOVERY FROM SALT MIXTURES OF COPPER AND METALS MORE ELECTROPOSITIVE THAN COPPER

Roald R. Skarbo, Lexington, and Antonio H. Miguel, Cambridge, Mass., assignors to Kennecott Copper Corporation, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,677

Int. Cl. C01g *3/12*

U.S. Cl. 423—565 **9 Claims**

Copper may be efficiently separated from metal salt mixtures, i.e. carbonate, chloride and sulfates by a process that comprises dissolving a portion of the metal salt mixture in hydrochloric acid, reducing the other portion of the metal salt mixture with a reducing gas, combining the hydrochloric acid solution and the reduced portion along with elemental sulfur to precipitate out substantially all of the copper in the metal salt mixture as cuprous sulfide.

3,810,972

REDUCTION OF SULPHUR OXIDES

Robert Walter Humphrey, Didcot, and Gerald Moss, Oxford, England, assignors to Esso Research and Engineering Company

Filed Feb. 24, 1972, Ser. No. 228,829

Int. Cl. C01b *17/04;* **C10g** *9/28*

U.S. Cl. 423—569 **14 Claims**

A substrate is coked by contact with oil at cracking temperature, and the coked substrate is then contacted with sulphur oxides-containing gases to reduce the sulphur oxides to sulphur (which is recovered) and to oxidize coke to carbon oxides. The cracked oil vapors are also recovered. The process is operated either cyclically, intermittently or continuously.

3,810,973

METHOD OF PREPARING FERRITES

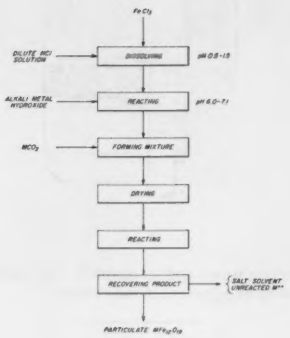
Ronald H. Arendt and Charles E. Vanburen, Schenectady, N.Y., assignors to General Electric Company

Filed Jan. 12, 1973, Ser. No. 323,084

Int. Cl. C01g *49/00*

U.S. Cl. 423—594 **5 Claims**

A method of making a magnetoplumbite ferrite is provided wherein an aqueous solution of ferric chloride is reacted with an alkali metal hydroxide to form ferric oxide hydrate in a salt solution, and then an alkaline earth metal carbonate is added to the mixture. After drying, the



ferric oxide and the alkaline earth metal carbonate are reacted in a molten salt solvent and the particulate ferrite is recovered.

3,810,974

ALUMINUM HYDRIDE PREPARATION

William M. King, Walnut, Calif., assignor to Aerojet-General Corporation, Azusa, Calif.

No Drawing. Filed May 5, 1964, Ser. No. 366,933

Int. Cl. C01b *6/00*

U.S. Cl. 423—645 **5 Claims**

This invention relates to a novel form of aluminum hydride and a method for its preparation.

3,810,975

START-UP PROCEDURE FOR CATALYTIC STEAM REFORMING OF HYDROCARBONS

Chester B. Brooke, East Alton, Ill., assignor to Shell Oil Company, Houston, Tex.

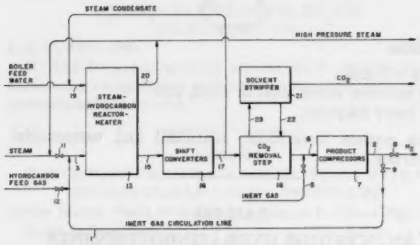
Filed Oct. 15, 1971, Ser. No. 189,577

Int. Cl. C01b *1/18, 1/32*

U.S. Cl. 423—652 **5 Claims**

A process for catalytic steam reforming of hydrocarbons to produce hydrogen, carbon monoxide and carbon dioxide from steam and a gaseous hydrocarbon mixture in a system including an inlet reactor-heater, catalyst-filled tubes, a hydrogen product compressor, and a valved conduit between the discharge side of the hydrogen compressor and the inlet to the reactor-heater is started up by introducing an inert gas into the system, circulating said inert gas through the system with the hydrogen product compressor by passing it back to said reactor-heater, heating the catalyst-filled tubes to a temperature above the dew point of steam while circulating inert gas,

introducing steam and hydrocarbons into the system, stopping the inert gas circulation by closing the valve



in the conduit and removing hydrogen product from the system with the compressor.

3,810,976

LUNG SCANNING 99m TECHNETIUM MACRO-AGGREGATE AND METHOD OF PREPARATION

Vernon Joe Ficken, Edmond, Okla., Samuel E. Halpern, Los Angeles, Calif., and Leonard R. Miller, Oklahoma City, Okla., assignors to University of Oklahoma Foundation, Inc., Oklahoma City, Okla.

No Drawing. Filed May 20, 1970, Ser. No. 39,857

Int. Cl. A61k *27/04*

U.S. Cl. 424—1 **10 Claims**

A lung scanning agent and method, the agent comprising a 99m technetium **-sulfur** colloid macroaggregate stabilized with a dialdehyde. More specifically, the composition comprises a 99m TcO_4 solution of the desired activity together with gelatin, an acid, and thiosulfates and perrhenates of the metals of Group IA of the Periodic Table of the Elements. The composition is heated to produce the desired macroaggregate particles and a dialdehyde such as glutaraldehyde is added to stabilize the particles. A high percentage of the particles produced upon injection are initially distributed throughout the lungs and upon clearance distribute themselves throughout the reticuloendothelial system.

3,810,977

HAIR FIXING COMPOSITION AND PROCESS CONTAINING A SOLID TERPOLYMER

Ralph M. Levine, Somerset, Lawrence D. Schuler, North Brunswick, and Albert L. Micchelli, Middletown, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 625,328, Mar. 23, 1967. This application Jan. 27, 1971, Ser. No. 110,342

Int. Cl. A61k *7/00*

U.S. Cl. 424—47 **5 Claims**

This application describes hair fixing terpolymer compositions comprising vinyl acetate, crotonic acid and vinyl esters of alpha-branched saturated aliphatic monocarboxylic acids containing from 5 to 10 carbon atoms in the carboxylic acid moiety, and a process for making such compositions. It also describes a method for treating hair with such compositions.

3,810,978

PROCESS FOR PRODUCING ANTILIPEMIC SUBSTANCE

Toshihiro Hamakawa, Motoyoshi Kajihara, Takashi Suzue, and Fumiaki Ogawa, Naruto, Japan, assignors to Taiho Pharmaceutical Company, Limited, Tokyo-to, Japan

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,316

Int. Cl. A61k *17/00*

U.S. Cl. 424—95 **4 Claims**

A process for producing an antilipemic substance comprises grinding an autolytic organ of a mammal in aqueous medium, autolyzing said organ in the aqueous medium to allow the autolyzed substance to be transferred into the aqueous medium, dialyzing the resulting liquid to remove low molecular weight substances dissolved in the aqueous medium, adding a deproteinizing agent to the nondialyzed portion for deproteinization, dialyzing the deproteinized liquid again to remove deproteinizing agent used, concentrating the resulting nondialyzed liquid, adding an organic solvent to the concentrated liquid to precipitate effective substance and recovering the precipitated effective substance.

3,810,979

PHOSPHONIUM COMPOUNDS FOR TREATING GASTROINTESTINAL HYPERACIDITY AND ULCERATION

Julius Diamond, Lafayette Hill, and King Auyang, Philadelphia, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Original application Dec. 17, 1970, Ser. No. 99,313, now Patent No. 3,742,064. Divided and this application Jan. 31, 1973, Ser. No. 328,176

Int. Cl. A61k *27/00*

U.S. Cl. 424—198 **8 Claims**

Aralkyl phosphonium salts of this invention possess useful gastic anti-secretory, spasmolytic and antiulcerogenic properties. A method of treating gastrointestinal hyperacidity and ulceration has also been disclosed.

3,810,980

INSECTICIDAL AND ACARICIDAL FORMULATION OF INCREASED STABILITY

Heinrich Pohlmann, Leverkusen, and Karl-Julius Schmidt, Wuppertal-Vohwinkel, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of application Ser. No. 205,313, Dec. 6, 1971, which is a continuation of application Ser. No. 2,952, Jan. 14, 1970, both now abandoned. This application Aug. 24, 1972, Ser. No. 283,443

Claims priority, application Germany, Jan. 23, 1969, P 19 03 228.1

Int. Cl. A01n *9/36*

U.S. Cl. 424—200 **14 Claims**

Formulation of increased stability containing (1) the normally unstable insecticidally and acaricidally active compound O,O - diethyl-O-quinoxal-2-yl-thionophosphoric ester, e.g. in an amount of about 20–80% by weight, (2) a diluent such as a higher boiling hydrocarbon and/or higher boiling ester, e.g. in an amount of about 15–80% by weight, and (3) a stabilizer such as (a) a tertiary amine, e.g. in an amount of about 0.1–10% by weight, (b) a dipolar aprotic solvent, e.g. in an amount of about 0.01–10% by weight, or a mixture of (a) and (b) in an

amount of about 0.01–20% by weight; optionally including (4) a surfactant such as emulsifying and/or dispersing agent; and methods of improving and increasing the stability, e.g. in storage, of O,O-diethyl-O-quinoxal-2-yl-thionophosphoric acid ester, especially when associated or admixed with diluents, which contemplate the admixing of the above-noted components, (1), (2) and (3), and optionally also (4), e.g. in the stated amounts.

3,810,981

INSECTICIDAL COMPOSITIONS AND METHODS EMPLOYING PHOSPHORYLATED ANILIDES

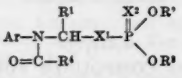
John F. Olin, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Feb. 20, 1970, Ser. No. 13,173, now Patent No. 3,714,299. Divided and this application June 7, 1972, Ser. No. 260,623

Int. Cl. A01n *9/36*

U.S. Cl. 424—204 **30 Claims**

Insecticidal compositions and methods employ as the active ingredient compounds of the formula



wherein Ar, R^1, R^2, R^3, R^4, X^1 and X^2 are as defined hereinafter.

3,810,982

INSECTICIDAL PHOSPHONYL CYANODITHIOIMIDO CARBONATES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 13,857, Feb. 24, 1970. This application Oct. 2, 1972, Ser. No. 294,138

Int. Cl. A01n *9/36*

U.S. Cl. 424—210 **12 Claims**

Novel phosphoryl cyanodithioimido carbonates are disclosed. The compounds are useful as insecticides, particularly as soil insecticides.

3,810,983

PESTICIDAL COMPOSITIONS AND METHODS OF KILLING PESTS USING O-ALKYL-S-(β-ALKOXYETHYL) - S - (ALKOXY OR PHENOXY-ALKYL) PHOSPHORO DITHIOLATES

Shigeo Kishino, Tokyo, and Akio Kudamatsu and Kozo Shiokawa, Kanagawa, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

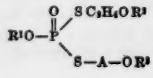
No Drawing. Original application Nov. 8, 1971, Ser. No. 196,748. Divided and this application Nov. 10, 1971, Ser. No. 197,522

Claims priority, application Japan, Nov. 18, 1970, 45/100,996

Int. Cl. A01n *9/36*

U.S. Cl. 424—217 **9 Claims**

O-alkyl-S-(β-alkoxyethyl)-S-(alkoxy or phenoxyalkyl) phosphoro dithiolates of the general formula



(I)

in which

R^1 is methyl or ethyl, R^2 is lower alkyl,
R^3 is lower alkyl or

wherein

n is 0 to 3 and
X is halogen, lower alkyl or nitro, and
A is lower alkylene,

which possess insecticidal, acaricidal and nematocidal properties.

3,810,984

ANTICESTODE HYDRAZINOQUINOLINES

Philip Paul Actor, Phoenixville, Pa., and Cesare Enrico Giuseppe Pellerano, Sienna, Italy; said Actor assignor to Smithkline Corporation, Philadelphia, Pa.

No Drawing. Original application Sept. 19, 1969, Ser. No. 859,593, now Patent No. 3,646,019. Divided and this application June 2, 1971, Ser. No. 149,340

Claims priority, application Italy, Oct. 26, 1968, 23,025/68

Int. Cl. A61k *27/00*

U.S. Cl. 424—258 **10 Claims**

4 - (pyridylmethylenehydrazino)quinolines, optionally substituted with a 2-alkyl group and otherwise at the 6,7,8, or 9-positions, are prepared by condensation of a hydrazinoquinoline with a pyridinecarboxaldehyde. The compounds are used to combat tapeworm infections in animals.

3,810,985

S-TRIAZINES FOR TREATING GASTROINTESTINAL HYPERACIDITY AND ULCERATION

Julius Diamond, Lafayette Hill, Pa., assignor to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Original application Oct. 14, 1971, Ser. No. 189,405, now Patent No. 3,758,469. Divided and this application Mar. 1, 1973, Ser. No. 337,031

Int. Cl. A61k *27/00*

U.S. Cl. 424—249 **3 Claims**

The 2-amino-4-anilino-6-substituted 1,3,5-triazine compounds of this invention are useful in the treatment of gastrointestinal hyperacidity and ulceration. These compounds also have utility as antihypertensive agents.

3,810,986

NOVEL METHOD AND COMPOSITION

Bo Thuresson af Ekenstam, Bror Arne Thalen, and Axel Karl Gunnar Aberg, Molndal, and Karl Goran Claeson, Goteborg, Sweden, assignors to AB Bofors, Bofors, Sweden

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,307

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **7 Claims**

This invention relates to a novel process for the production of the D-(−)-hydrochloride salt of mepivacaine. This invention also relates to the discovery that the D-(−)-hydrochloride salt of mepivacaine exhibits unexpectedly superior properties for the treatment of arrhythmic disorders of human and animal hearts. D-(−)-mepivacaine hydrochloride can also be referred to as D(−)-methyl pipecolic acid-2',6'-xylidide hydrochloride.

3,810,987

BLOOD PRESSURE LOWERING METHOD USING AN APORPHINE

Walfred S. Saari, Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Filed June 12, 1972, Ser. No. 261,826
Int. Cl. A61k 27/00
U.S. Cl. 424—258 8 Claims

Method for lowering mean arterial blood pressure by administering an aporphine derivative. Compounds prepared by conventional procedures.

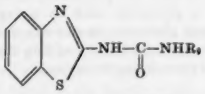
3,810,988

CONTROL OF PHYTOPATHOGENIC FUNGI WITH N-BENZOTHIAZAE-2-YL N-' PROPYLURE

Stefan Janiak, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Division of Ser. No. 868,589, Oct. 22, 1969, Pat. No. 3,725,428. This application Feb. 12, 1973, Ser. No. 331,721
Claims priority, application Switzerland, Nov. 1, 1968, 16333/68
Int. Cl. A01n 9/12, 9/22
U.S. Cl. 424—270 4 Claims

Phytopathogenic fungi are controlled by the use of compounds of the formula



in which R_9 is C_3 alkyl.

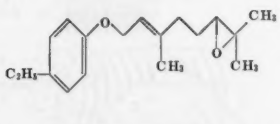
3,810,989

CONTROL OF CONFUSED FLOUR BEETLES USING GERANYL PHENYL ETHERS

Peter E. Letchworth, Mountain View; Julius J. Menn, Saratoga, and Ferenc M. Pallos, Pleasant Hill, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation-in-part of Ser. No. 90,067, Nov. 16, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,589
Int. Cl. A01n 9/28
U.S. Cl. 424—278 1 Claim

A method of controlling stored grain insects is described herein. Specifically, the method comprises adding an effective amount to the habitat of the stored grain insects, specifically, confused flour beetle, an effective amount of the following compound:



3,810,990

INHIBITING GROWTH OF BACTERIA

Leonard Jurd, Berkeley, and Alfred Douglas King, Jr., Martinez, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Feb. 27, 1970, Ser. No. 15,302
Int. Cl. A01n 9/28
U.S. Cl. 424—283 1 Claim

Substances which are subject to microbial spoilage are preserved by addition of certain compounds, e.g., 3-0-methylquercetin; a composition of 5-0-methyl- and 7-0-methylquercetin; 4- or 7-methoxycoumarin; 2-(4-hydroxyphenyl)-benzofuran; or various mixtures of these.

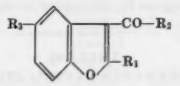
3,810,991

A METHOD OF INDUCING FIBRINOLYSIS

Fernand Binon, Strombeek-Bever, and Henri Inion, Wemmel, both of Belgium, assignors to Labaz, Paris, France

Filed Apr. 17, 1972, Ser. No. 244,495
Claims priority, application Great Britain, Apr. 29, 1971, 12277/71
Int. Cl. A61k 27/00
U.S. Cl. 424—263 2 Claims

Method of treating mammals to induce fibrinolysis or counteract fibrinolytic syndromes by administering a compound of the formula



wherein R_1 represents a straight or branched chain alkyl group containing from 1 to 8 carbon atoms, cyclohexyl, or phenyl, 4-methylphenyl or 4-chlorophenyl; R_2 represents 4-pyridyl or N-oxide derivative thereof; and R_3 represents hydrogen, hydroxyl, methyl, methoxyl, chlorine or bromine or a pharmaceutically acceptable acid solution salt of said benzofuran derivative, and a pharmaceutical carrier therefor.

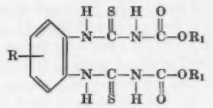
3,810,992

ANTHELMINTIC BIS-THIOUREIDO BENZENE DERIVATIVE

Julius Joel Menn, Saratoga, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Filed Sept. 2, 1971, Ser. No. 177,471
Int. Cl. A61k 27/00
U.S. Cl. 424—300 1 Claim

This invention relates to the control of internal parasites. More specifically, this invention relates to the use of anthelmintic active compounds defined by the following formula:



wherein R can be hydrogen, nitro, halogen or lower alkyl group and R_1 is a lower alkyl group.

3,810,993

CONTROL OF ACARINAE AND MOLLUSCS WITH PHENYLISOTHIOCYANATE COMPOUNDS

Dieter Duerr, Basel, and Marcus Von Orelli, Muenchenstein, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation of Ser. No. 877,460, Nov. 17, 1969, abandoned, which is a continuation-in-part of Ser. No. 646,184, June 15, 1967, abandoned. This application Mar. 6, 1972, Ser. No. 232,209
Claims priority, application Switzerland, June 22, 1966, 9058/66
Int. Cl. A01n 9/18
U.S. Cl. 424—302 16 Claims

The present invention relates to a preparation and method for combating representatives of the order Acarina and molluscae which comprise as an active ingredient at least one compound of the formula

R — NCS

in which R represents a lower alkyl, lower alkoxy or lower alkenyl radical or an optionally substituted aromatic monocyclic or polycyclic radical.

3,810,994
METHOD AND COMPOSITION FOR TREATING OBESITY
Karl E. Wiegand, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.
Filed June 1, 1972, Ser. No. 258,655
Int. Cl. A61k 27/00
U.S. Cl. 424—316 4 Claims

A method and therapeutic composition for the treatment of obesity by internal administration in unit dosage form of carnitine or a suitably active derivative thereof. For example, carnitine may be administered either alone, or with another weight reducing preparation, or in the course of a restricted caloric dietary program for treatment of obesity.

3,810,995
CENTRAL NERVOUS SYSTEM STIMULATION
Salvatore F. Biscardi, Cornwall, and Benjamin R. Zeitlin, Suffern, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.
Filed Mar. 31, 1972, Ser. No. 240,270
Int. Cl. A61k 27/00
U.S. Cl. 424—331 6 Claims

A mixture of 1-carvone and cis-carveol has been found to produce central nervous system (CNS) stimulatory effects when ingested. The mixture is effective at low levels and, therefore, may be incorporated into a variety of foodstuffs without imparting any undesirable off-flavors.

3,810,996
COSMETIC PREPARATION
Gloria M. Sutliff, 8105 Kerry Rd., Chevy Chase, Md., and Maria F. Moreno, P.O. Box 5019, Quito, Ecuador
Filed Mar. 14, 1972, Ser. No. 234,641
Int. Cl. A61k 7/00
U.S. Cl. 424—364 5 Claims

A soothing, cleansing, and beneficial cosmetic facial mask is provided in two parts comprising an oil base, preferably a mixture of almond oil and olive oil, and an aqueous paste of banana flour, dried milk solids. The mask is employed by coating the skin areas to be treated with the oil base and thereafter applying a thick layer of the paste over the oil. The mask is left in place for a period of about thirty to forty minutes and then removed. The oil base will preferably contain a minor amount of Royal Jelly, on the order of about 0.1 to 5.0 weight percent, based on the weight of the oil.

ERRATA

For Classes 426—241 and 426—92 see:
Patents Nos. 3,810,764 and 3,810,765

3,810,997
TREATMENT OF SOYBEANS WITH YEAST
Hwei-Chiu Chien, Northbrook, Ill., assignor to Kraftco Corporation, New York, N.Y.
Filed Oct. 7, 1971, Ser. No. 187,567
Int. Cl. A23l 1/20
U.S. Cl. 426—205 8 Claims

A method for treating a vegetable material containing protein is provided. In the method, an aqueous dispersion containing protein is prepared. The aqueous dispersion is then treated to provide a substrate that is relatively free from microbiological contamination. A viable culture of a particular yeast or mixture of yeasts is then added to the substrate. The yeast is selected so as to be capable of utilizing the carbohydrate material found in the vegetable protein source. Fermentation of the inoculated substrate is then effected under conditions which minimize production of alcohol.

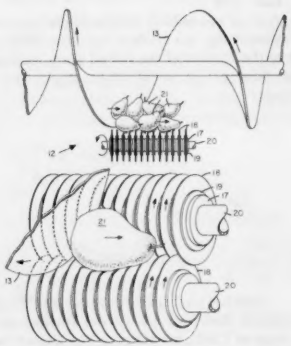
3,810,998
INHIBITION OF WARMED-OVER FLAVOR IN UNCURED COOKED MEATS
Kunito Sato, Chicago, and Gerald R. Hegarty, Elmhurst, both of Ill., assignors to Armour and Company, Chicago, Ill.
Filed Nov. 3, 1972, Ser. No. 303,526
Int. Cl. A22c 18/00
U.S. Cl. 426—332 8 Claims

A method for inhibiting the development of warmed-over flavor in uncured meat where the meat is cooked, cooled and stored at above freezing temperature in the presence of the compound known as reductic acid, after which the stored meat may be consumed cold or reheated without the development of objectionable warmed-over flavor.

3,810,999
MODIFICATION OF AQUEOUS COFFEE AROMA
T. Thomas Balling, Danbury, Conn., and James P. Mahlmann, Wayne, N.J., assignors to General Foods Corporation, White Plains, N.Y.
Filed May 12, 1972, Ser. No. 252,777
Int. Cl. A23f 1/08
U.S. Cl. 426—362 3 Claims

Aqueous aromas are obtained from roasted coffee such as by contacting roasted and ground coffee with steam. The evolved aqueous aromas are preferably condensed and then partitioned with a glyceride such as a vegetable oil. The separate water and glyceride phases are used to aromatize soluble coffee products such as by adding the water phase to coffee extract and then drying the extract.

3,811,000
PEELING MACHINE AND METHOD
Louis P. Lazzarini, San Jose, Calif., assignor to Genevieve I. Hanscom (formerly Genevieve I. Magnuson); Genevieve I. Hanscom; Robert Magnuson and Lois J. Thompson (formerly Lois J. Duggan) Trustees of the estate of Roy M. Magnuson
Filed Oct. 12, 1971, Ser. No. 188,240
Int. Cl. A23n 7/00; A47j 17/18; B24b 29/00
U.S. Cl. 426—483 5 Claims



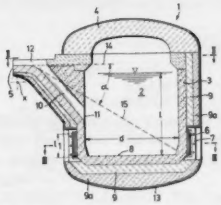
A peeling machine and method for fruits and vegetables includes a rotatable cylinder having its peripheral wall formed of a plurality of parallel horizontally disposed rotatable peeling rolls through which material such as pears, peaches, etc., is conveyed for peeling action. Each roll is provided with a peeling surface composed of a series of annular resilient peeling elements which are effective on treated fruit and vegetables to remove the skin.

ELECTRICAL

3,811,001
TILTABLE INDUCTION FURNACE FOR MOLTEN METALS

Robert Lethen, Lammersdorf, near Aachen, Germany, assignor to Otto Junker GmbH, Lammersdorf, near Aachen, Germany

Filed Sept. 5, 1973, Ser. No. 394,450
Claims priority, application Germany, Sept. 6, 1972, 2243757
Int. Cl. H05b *5/00*
U.S. Cl. 13—27 **12 Claims**

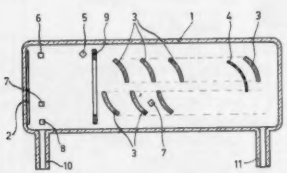


An induction furnace has a bottom wall and a circumferential side wall which extends upwardly from the bottom wall. The side wall surrounds a chamber the inner diameter of which is at least equal to the height of the side wall. Water-cooled induction coil is concentric with the side wall and extends upwardly from the region of the bottom wall by a distance which is at most equal to one quarter of the height of the side wall. Magnetic yokes are provided on the outer circumference of the coil and cover at least two thirds of the outer circumference. Thermally insulating material exteriorly surrounds the side wall upwardly of the induction coil.

3,811,002
METHOD OF MANUFACTURING AN ELECTRIC DISCHARGE TUBE HAVING AN ELECTRON EMITTING ELECTRODE COMPRISING A CESIUM-CONTAINING LAYER ON A SUPPORT

Siegfried A. E. Garbe; Pieter Zalm, and Willem Pastoor, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,082
Claims priority, application Germany, Aug. 17, 1971, 2141089
Int. Cl. H01j *9/22*
U.S. Cl. 316—5 **13 Claims**

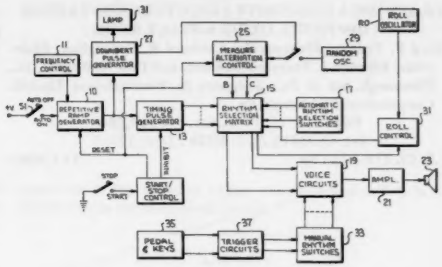


A method of manufacturing an electric discharge tube having an electron-emitting electrode comprising a support with a cesium-containing layer thereon which is activated by reaction of a gaseous compound of an inactive or inert gas and fluorine until a cesium fluoride layer having a composition (CsF, Cs) is formed. The gaseous compound, at the temperatures prevailing in the tube does not react with the surfaces of other parts.

3,811,003
RHYTHM ACCOMPANIMENT SYSTEM

Michael R. Harris, Hayward, Calif., assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Dec. 13, 1971, Ser. No. 207,455
Int. Cl. G10h *5/00*
U.S. Cl. 84—1.03 **11 Claims**

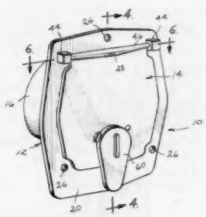


A system is disclosed for developing rhythmic accompaniment sounds from a free running repetitive ramp waveform having a controllable repetitive rate, there being a series of master timing pulses developed by triggering appropriate circuits at different ramp vol age levels during each ramp cycle. Certain of the master timing pulses are selected to form each required rhythmic pattern, the selected pulses being employed to trigger voice circuits to produce desired tones. In one embodiment a pattern selection circuit is employed to permit selective generation of any one of four pattern modes, namely: a first continuously repeated pattern; a second continuously repeated pattern; a pattern in which the first and second patterns are alternated; and a pattern in which the first and second patterns are randomly selected. In the preferred embodiment, 13 master timing pulses are provided during each measure and are separated by one, two, or three timing units in a 24 timing unit measure, an arrangement which permits of obtaining authentic accompaniment rhythms. A novel cowbell voicing circuit and a novel drum roll control circuit permit rhythmic generation of realistic cowbell and drum roll sounds in response to selected master timing pulses.

3,811,004
ELECTRICAL CORD HATCH

Glenn L. Moore, 2900-C Winding Waters Ln., Elkhart, Ind.

Filed June 22, 1973, Ser. No. 372,592
Int. Cl. H02g *3/14*
U.S. Cl. 174—67 **6 Claims**



An improved hatch mountable to a side wall of a travel trailer or mobile home and used to accommodate an electrical power supply cord which is connected to an exterior power

supply outlet. The hatch includes a housing having a cover which is shiftable between a closed position and an open position. The cover includes a slotted lower opening which serves to accommodate the electrical cord when the cover is in its closed position. A pivotally mounted tab is utilized to close the slotted opening in the cover and to secure the cover in its closed position when the electrical cord is disconnected from the power supply outlet.

3,811,005

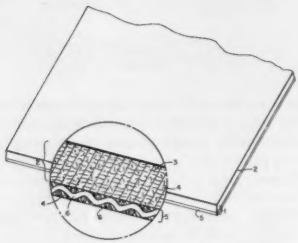
GLASS-MICA COMPOSITE STRUCTURE CONTAINING DEPHENYL OXIDE B-STAGE RESIN

Floyd F. Trunzo, Monroeville; Gerhard R. Sprengling, Blairsville; Edward J. Traynor, Bedford, and Dow A. Rogers, Jr., Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 23, 1972, Ser. No. 228,586

Int. Cl. H01b *7/28*; **B32b** *17/10, 27/12*

U.S. Cl. 174—121 SR **15 Claims**



A composite structure is disclosed which comprises a layer of glass cloth and a layer of mica paper impregnated and bonded together with a B-stage dephenyl oxide resin composition. The structure may be in the form of a tape or of a sheet and is used as insulation over electrical conductors. The dephenyl oxide composition preferably comprises a mixture of methoxy methyl diphenyl oxide and chloromethyl diphenyl oxide and a curing catalyst of finely divided silica containing a small amount of iron metal.

3,811,006

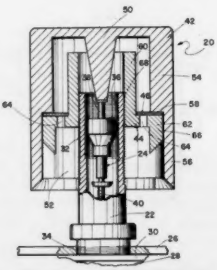
BREATHER CAP WITH VALVE DEPRESSOR

Norman Burnell, Allandale, and Robert A. Potruch, North Miami, both of Fla., assignors to Lumidor Products Corp., Hialeah, Fla.

Filed Oct. 30, 1972, Ser. No. 302,338

Int. Cl. H02g *15/00*

U.S. Cl. 174—135 **5 Claims**



In an electrical cable having an impervious sheath thereabout defining a space therebetween and a normally closed valve, a breather cap is provided. The breather cap is secured to the valve to bias the valve open so that the space within the sheath is at the same pressure as that of the ambient atmosphere surrounding the sheath. A screen is provided in the breather cap to preclude dirt from entering the valve.

3,811,007

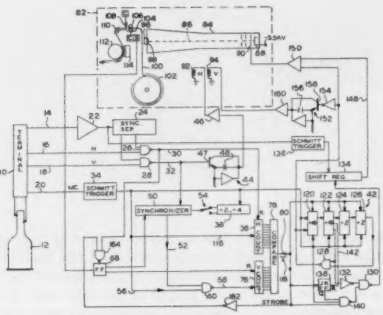
FACSIMILE METHOD AND APPARATUS

Peter J. Unger, Beaverton, and Harry L. Ford, Portland, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Nov. 11, 1971, Ser. No. 197,772

Int. Cl. H04n *1/22*

U.S. Cl. 178—6.6 A **13 Claims**



A hard copy of a refreshed computer terminal cathode ray tube display raster is produced on light sensitive paper by scanning the moving paper in the direction of paper movement employing a second cathode ray tube. Scans in the direction of paper movement are short and represent aligned segments of the original raster, this information being received at the scanning rate of a first tube and stored for readout onto the sensitive paper at a slower rate between reception of the aforementioned segments.

3,811,008

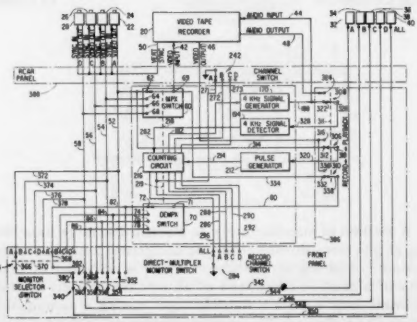
VIDEO MULTIPLEX SYSTEM

Saishek Lee, 3322 Beauchamp, Houston, Tex.

Filed Jan. 24, 1972, Ser. No. 220,019

Int. Cl. H04n *5/78*

U.S. Cl. 178—6.6 A **5 Claims**



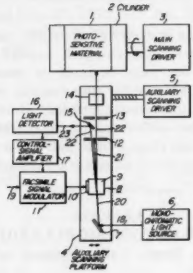
A video multiplex system for recording video signals from a plurality of video channels and reproducing the video signals on a plurality of video monitors is provided. The system in-

cludes a video recorder, multiplex circuitry for sequentially coupling a video input of the recorder to the video channels, demultiplex circuitry for sequentially connecting a video output of the recorder to the monitors, and a control circuit responsive to synchronizing signals from at least one of the video channels for operating the multiplex and demultiplex circuitry. The system also includes a signal generator operated by a control circuit for applying a synchronzing signal to an audio input of the recorder during the coupling of a selected video channel to the recorder to indentify video signals recorded from the selected channel. A synchronizing signal detector responsive to an audio output of the recorder is provided to synchronize the operation of the control circuit and demultiplex circuitry with the recorded video signals during play-back of the recorded video signal on the monitors.

3,811,009
FACSIMILE DEVICE

Akira Fukumoto, Kawasaki; Toshihide Hane, Sakai; Hiroyoshi Tsuchiya, Kawasaki, and Heijiro Hayami, Tokyo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 14, 1972, Ser. No. 225,827
Claims priority, application Japan, Feb. 25, 1971, 46-10052
Int. Cl. H04n *1/00*
U.S. Cl. 178—6.7 **4 Claims**



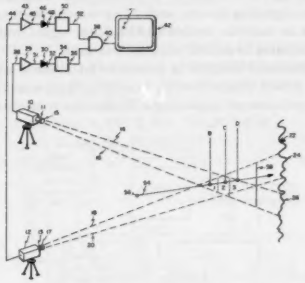
A facsimile device which makes use of a laser system as a light source to make possible high speed recording by modulating the laser beam through an acousto-optic modulator.

3,811,010
INTRUSION DETECTION APPARATUS

David T. Long, Oviedo, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 16, 1972, Ser. No. 281,080
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **8 Claims**

Intrusion detection apparatus employing two spaced-apart TV cameras having lines of observation which intersect to form a three dimensional monitored locale of interest and a TV monitor having a display tube and connected to respond to output signals from said TV cameras. The cameras and monitors being synchronized to identify the presence and location of an intruder object in said locale of interest. In another aspect the invention comparator-adder analyzing circuitry is provided between the cameras and monitor such that the monitor is actuated only when the video from both cameras is identical at a given instant. Assuming each camera is directed to observe a different background and that the focus is adjusted to substantially eliminate background signals, then only

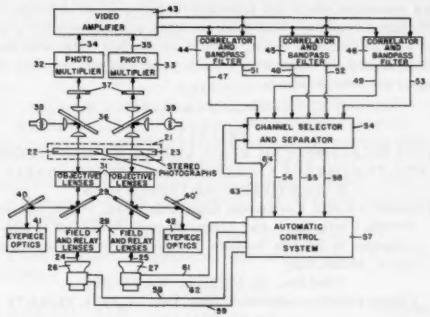


signals from the intruder object are observed and it is observed only in the monitored locale.

3,811,011
MULTIPLE IMAGE REGISTRATION SYSTEM

John W. Hardy, Lexington; Donald C. Redpath, Winchester, both of Mass., and Gilbert Hobrough, Vancouver, British Columbia, Canada, assignors to Itek Corporation, Lexington, Mass.

Filed July 8, 1969, Ser. No. 839,940
Int. Cl. G01c *11/18;* **G01b** *11/24;* **H04n** *7/18*
U.S. Cl. 178—6.8 **35 Claims**



A multiple image registration system utilizing scanning patterns with orthogonally related scanning paths parallel to the directions of transformation introduced for correcting x and y-parallax. A cross-correlation signal indicative of correlation quality is separated into x and y-components uniquely representing correlation quality in each direction of scan. The separate components are used appropriately to effect relevant control of raster size, model profiling velocity, and both loop gains and operability of x and y-parallax transformation mechanisms.

3,811,012
REMOTE TELEPHONE CALLING SYSTEM

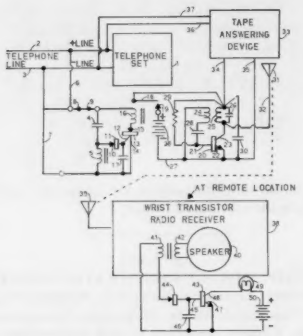
Alfred W. Barber, 32-44 Francis Lewis Blvd., Bayside, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,484
Int. Cl. H04m *11/10*
U.S. Cl. 179—2 A **10 Claims**

A telephone calling system provides in response to received ringing pulses; (1) circuit closure disabling the ringing circuit

and enabling the voice communication circuit; (2) turns on an answering device which transmits "you have reached the phone of Mr. Smith. I am in the back yard. Please hold the line until I can get to the phone"; (3) sends out a signal to activate a remote signaling device, and; (4) a remote wrist radio device provides an audible, visible and/or other signal indicating that a call has come in on the telephone circuit.

The standard telephone provides an audible signal in the form of a bell which is energized by pulsing current over the line to indicate an incoming call. In case it is undesirable to



have an audible signal, a visible signal in the form of a blinking lamp may be substituted. Whenever an individual on the receiving end is within range of these signals, there is no particular problem. However, the ranges of these audible and/or visible signals are definitely limited. There are many and growing situations where the intended recipient is out of range of the signal or signals. Examples are when one is in another part of a large rambling house, outside, in another room with the door closed, in a neighbor's back yard, and any number of other possible situations.

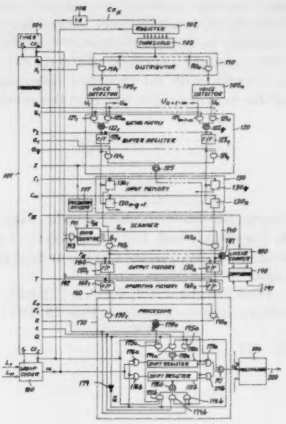
3,811,013

PCM TELECOMMUNICATION SYSTEM HAVING MEANS FOR TEMPORARY EXCLUSION OF VOICE CHANNELS UNDER OVERLOAD CONDITIONS

Gianmario Costa, Cornaredo; Giancarlo Monti, Milan; Isidoro Poretti, Castigilione, and Alvaro Bagnoli, Milan, all of Italy, assignors to Societa Italiana Telecommunicazioni Siemens S.p.A., Milan, Italy

Filed Dec. 18, 1972, Ser. No. 315,897
Claims priority, application Italy, Dec. 17, 1971, 32585/71
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 BA **10 Claims**

A terminal of a pulse-code-modulation (PCM) time-division multiple-access (TDMA) telecommunication system, serving for the exchange of digitized message samples in the form of interleaved multibit pulse codes between a multiplicity of local voice channels and a like number of remote voice channels accessible through another terminal, includes at least one processing station serving several *n*-channel groups whose incoming lines are periodically sampled by respective group coders working into a common multiplexer. A processor inserted between each group coder and the multiplexer comprises a pair of alternately operative shift registers which receive only the coded voice samples from active lines, as determined by a monitoring circuit including a multiplicity of voice detectors, and subsequently discharge them at an accelerated rate in an intermittent code sequence for intercalation in a PCM frame with the similar code sequences from other processors of the station. The voice detectors deliver an activity pattern for all the *n* channels of the corresponding group to an allocation-message generator provided with an *n*-stage input register and an *n*-stage output register; characteristic bits representing active stages are transferred, stage by stage, from the input register to the output register under the control of a cyclic scanner including a ring counter which is continuously stepped by clock pulses unless its advance is blocked by a linear pulse counter, registering the number of characteristic-bit transfers per frame, if that number reaches the maximum number of communication time slots allotted to the group in an assigned subframe of the multiplexer. On the



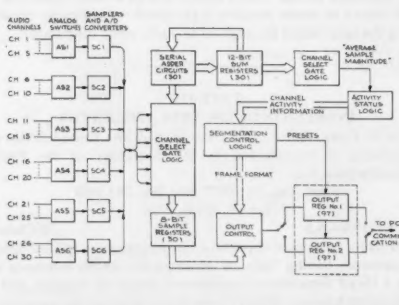
next frame, scanning is restarted from the position in which the ring counter was last stopped, except during certain frames in which the ring counter is reset to zero for synchronization with a similar ring counter in an associated receiving station at the remote terminal where the allocation message, partly transmitted during each frame, is decoded with the aid of another ring counter and linear counter operating in step with those of the transmitting station.

3,811,014

ADAPTIVE PULSE CODE MODULATION SYSTEM

Neal B. Seitz, San Diego, Calif., assignor to Logicon, Inc., Hawthorne, Calif.

Filed Mar. 12, 1973, Ser. No. 340,562
Int. Cl. H04j *3/00*
U.S. Cl. 179—15 BW **14 Claims**



An adaptive pulse code modulation system useful for increasing the channel capacity of a fixed bandwidth communication link by reducing the redundancy characteristic of nonadaptive systems. In the subject system, the transmitter allocates space in a fixed bit length sample field amongst multiple channels on a frame by frame basis. Each channel is assigned space in the sample field only when that channel is ac-

tive. The activity status of each channel is determined by averaging the sample amplitudes from that channel over a specified number of frames and if that average exceeds a specified threshold, then that channel is defined to be active. The activity status of each channel is monitored at a very high rate so that when a user begins speaking, his voice will be detected and assigned space soon enough to prevent his speech from being noticeably clipped. Each frame includes at least three fields; (1) an active channel sample field, (2) an activity status field and (3) an activity sync field. The activity status field is used to represent the activity status of a different channel each frame. Thus, in a typical 30 channel system, the activity status of each channel will be reported once every 30 frames. The activity sync field is comprised of one bit which enables the receiver to assign each received activity status field to the proper channel. In constructing a frame, the transmitter samples each voice channel and allocates a portion of the adaptive sample field to each active channel leaving vacant space if the complete sample field is not required and "rounding off" the samples to "fit" them in the sample field if an unusually large number of channels are active. To process each incoming frame, the receiver counts the total number of active channels, determines the number of bits per sample, and then rescales the received samples back to full magnitude if they were rounded off.

3,811,015

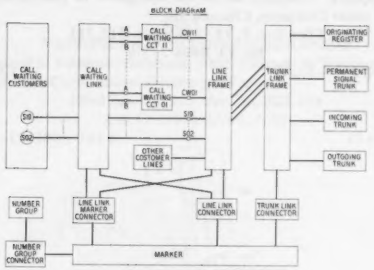
SWITCHING SYSTEMS WITH SPECIAL CUSTOMER SERVICE

Ronald Valentine Beth, Reynoldsburg, and John Mason Catterall, Columbus, both of Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 27, 1972, Ser. No. 301,370

Int. Cl. H04m *3/42*

U.S. Cl. 179—18 BG **14 Claims**



A marker controlled crossbar telephone switching system provides call waiting service to special customer lines by attaching call waiting circuits to the lines through a crossbar switch link. Lines terminate on verticals of the link and call waiting circuits terminate on all levels (horizontals) of the link except level zero. Each line is connected to its usual system line terminal through contacts of the unoperated hold magnet for that link vertical. When the hold magnet is operated, the line is connected either (a) to its line terminal through crosspoints controlled by the select magnet for level zero or (b) to a call waiting circuit through crosspoints controlled by the select magnet for the level corresponding to that call waiting circuit. Also, when a select magnet for a call waiting circuit and a hold magnet for a line are operated, the call waiting circuit is also connected through crosspoints controlled by its corresponding select magnet to the line terminal of the line corresponding to the operated hold magnet. The call waiting circuits also terminate in system terminals assigned thereto. Whenever any line is connected to its line terminal over crosspoints of level zero no call waiting circuit may be attached thereto. Whenever any line is connected to its line terminal over contacts of its unoperated hold magnet a call waiting circuit may be attached thereto by means of crosspoints of the level corresponding to that call waiting circuit.

3,811,016

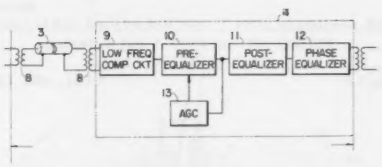
LOW FREQUENCY CUT-OFF COMPENSATION SYSTEM FOR BASEBAND PULSE TRANSMISSION LINES

Yoshitaka Takasaki, Hachioji, and Kouji Aoki, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 1, 1972, Ser. No. 302,896

Int. Cl. H04b *3/58*

U.S. Cl. 179—170 R **6 Claims**



A low frequency cut-off compensation system for reducing intersymbol interference due to low frequency cut-off in baseband hybrid pulse transmission systems including analog repeaters consists of amplifiers individually provided at the input end of respective analog repeaters.

Each of the amplifiers is a low frequency amplifier having such a characteristic as to effect compensation of the attenuation of an associated repeater section of the transmission line including a coaxial cable, an analog repeater and transformers and particularly effect overcompensation of the overall characteristic in the neighborhood of the cut-off frequency.

3,811,017

MOVABLE CABLE- AND CONDUCTOR INFEED ARRANGEMENT FOR TRANSPORT- AND CHANGE WAGONS POSSESSING LIMITED MOBILITY WITH THE HALLS OF STEEL WORKS

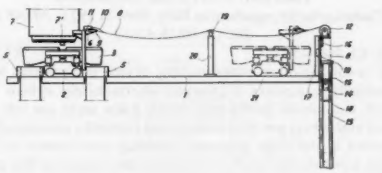
Josef Eisen, Osterrath, and Horst Gauger, Wuifrath, both of Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 22, 1973, Ser. No. 325,750

Claims priority, application Germany, Jan. 28, 1972, 2203953

Int. Cl. H02g *11/02*

U.S. Cl. 191—12 R **7 Claims**



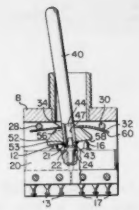
A movable line infeed arrangement, especially cable- and conductor infeed arrangement for transport- and change wagons or carriages which are movable within limited paths of travel in the halls of steel works, and which wagons are especially suitable for the handling of the casting vessels of continuous casting installations, wherein the cable or conductors

are secured to a metallic band anchored at the wagon. This metallic band is guided overhead to a deflecting roller arranged at the end of the path of travel of the carriage or wagon and from such location is guided about a loose tensioning roll and then leads to a stationary connection location which is located approximately in the direction of the deflecting roller.

3,811,018
MULTIDIRECTIONAL JOY STICK TYPE LEVER ACTUATED SWITCHES

Joseph Kaplan, Jericho, N.Y., assignor to Machine Components Corporation, Plainview, Long Island, N.Y.

Filed June 25, 1973, Ser. No. 373,500
Int. Cl. H01h *25/04*
U.S. Cl. 200—6 A **12 Claims**



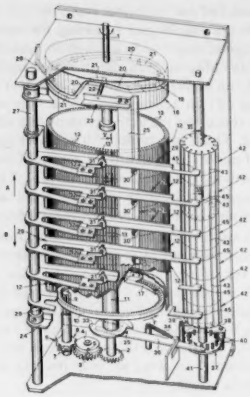
A multidirectional lever actuated self neutralizing switch having a base comprising a tapered pin which extends into a recess provided in one end of the lever, the angular relationship between the tapered surface of the pin and the surface of the recess when the switch is in an off position being predetermined to define the maximum degree to which the lever can be pivoted about the pin to cause the lower surface of an actuator plate affixed to the lever to actuate a self-restoring switch when the lever is so pivoted. The upper surface of the actuator plate is juxtaposed on a leaf spring when the switch is in the "off" position. Subsequent to the actuation of a switch and the termination of the juxtaposition of the spring vis-a-vis the plate by pivoting the lever; that is, when the lever is released, the pressure exerted on the plate by the spring causes the lever to resume its off position and the upper surface of the actuator plate to again be juxtaposed on the spring.

3,811,019
ROTARY-DRUM PROGRAMMING TIMER DEVICE

Fermo Solari, Udine, Italy, assignor to Solari & C/Udine S.p.A., Udine, Italy

Filed Nov. 3, 1972, Ser. No. 303,656
Claims priority, application Italy, Nov. 5, 1971, 30748 A/71
Int. Cl. H01h *43/22*
U.S. Cl. 200—38 CA **8 Claims**

A revolving-drum programming device is disclosed, which essentially comprises a grooved intermittently driven main drum, a comblike member in which a few teeth are left unaltered and others are suppressed, said comblike members being inserted in the drum grooves, a spatial cam rotated so as to make a revolution at every stepwise movement of the drum, said cam cooperating with a first cam follower, a second follower being provided, mechanically connected to the first follower so as to positively or negatively engage the teeth of said comblike members, the second follower being connected to a signal generating device. The apparatus can be supplemented by additional main drums and one or more auxiliary drums, so as to provide a wide range presetting for the cases in which certain points of the programme are to be suppressed or repeated. The advantage is to provide a compact assembly along with an accurate presetting of programmes, which can be set, even minute by minute, for periods as long as an entire week.

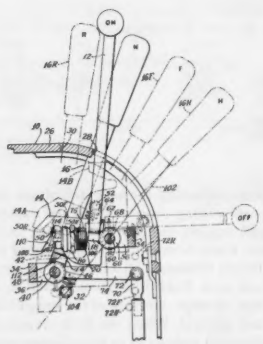


The programming device can be used, for example, for controlling the lighting of luminous signs, for periodically actuating sound signalling devices and for many other like uses.

3,811,020
SAFETY LOCK LEVER AND STARTING SAFETY SWITCH OPERABLE THEREBY

Robert W. Johnson, Winfield; George H. Waue, Arlington Heights; William R. Golden, Bloomingdale, and Hugo O. Mosquera, Wheaton, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Dec. 8, 1972, Ser. No. 313,311
Int. Cl. B60k *27/00*
U.S. Cl. 200—61.88 **1 Claim**



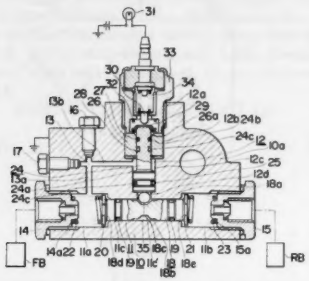
Safety lock lever for vehicles, particularly a lever movable to an on position in which it both electrically prepares the vehicle starter circuit for subsequent energization, and mechanically neutralizes the vehicle drive. In such a neutral-retaining position the lever is out of the way, and the driver can freely move about, both off and onto the vehicle. Equally significantly, the lever also has an off position in the way of the vehicle driver, as visible signal that the vehicle cannot be assumed safe to be dismounted from or entered or cranked.

3,811,021

AUTOMATIC RESET HYDRAULIC SWITCH

Shinya Ito, Tsushima, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-ken, Japan

Filed Dec. 29, 1972, Ser. No. 319,616
Claims priority, application Japan, Dec. 30, 1971, 46-2115
Int. Cl. H01h *35/38*
U.S. Cl. 200—82 D 3 Claims



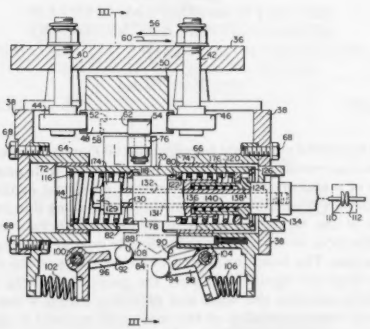
A hydraulically controlled, automatically resetting switch comprising two pressure responsive means, the first one of which is actuated upon there being a pressure difference between two hydraulic brake systems caused by failure in one of the systems and actuates the second pressure responsive means, which actuates a switch controlling an alarm device circuit until the failure is repaired, at which time the second pressure responsive means is moved away from the switch actuating position by hydraulic pressure communicated to it from the first pressure responsive means.

3,811,022

VACUUM SWITCH DRIVE MECHANISM

Edward F. Guidosh, Hubbard, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 9, 1973, Ser. No. 322,236
Int. Cl. H01h *33/66, 3/30*
U.S. Cl. 200—144 B 12 Claims



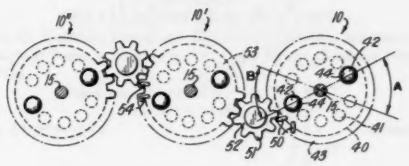
Drive mechanism for opening and closing the contacts of a vacuum switch. The mechanism includes a movable cylinder containing coil springs and a movable piston. The piston is connected to the vacuum switch and includes latching means which may be positioned to prevent movement of the pistons relative to the vacuum switch. A spring is compressed between the piston and the cylinder as the cylinder moves in the closing direction. The latching means is then unlatched and the piston is quickly moved by the force of the compressed spring to close the vacuum switch. Another spring is compressed when the cylinder moves in the opening direction. The latching means is then unlatched and the piston is quickly moved against the end of a shaft which is connected to the vacuum switch to open the vacuum switch.

3,811,023

SWITCH TRANSFER MECHANISM HAVING IDLER GEAR WITH POSITIONING MEANS PERMITTING THE TRANSFER MEANS TO BE CLEAR OF THE IDLER GEAR AFTER ITS TRAVEL THROUGH A PREDETERMINED SWITCH POSITION

Roy Stolweather Andersen, Granby, Quebec, Canada, assignor to General Precision Industries Limited, Montreal, Quebec, Canada

Division of Ser. No. 194,399, Nov. 1, 1971, abandoned. This application Jan. 2, 1973, Ser. No. 320,209
Int. Cl. H01h *3/40, 19/60*
U.S. Cl. 200—153 P 5 Claims



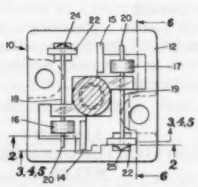
A switch transfer mechanism comprising two or more rotary switches each having a rotatable shaft and a disc secured transversely to each of the shafts. Transfer means are associated with each of the discs and adapted to engage an idler gear during its travel through a predetermined position. The idler gear is in tooth engagement with a further disc of an adjacent shaft to cause the further disc and adjacent shaft to rotate through one switch position. Each of the discs have positioning means associated therewith to releasably retain the rotor shaft in each switch position and to permit the transfer means to be clear of the idler gear after its travel through the predetermined switch position to thereby permit independent clockwise or counterclockwise rotation of the further shaft.

3,811,024

MOMENTARY CONTACT, NON-BOUNCE SWITCH

Henry J. Sevigny, Salem, N.H., assignor to Alco Electronic Products, Inc., North Andover, Mass.

Filed May 3, 1973, Ser. No. 356,734
Int. Cl. H01h *15/06*
U.S. Cl. 200—160 13 Claims



A novel switch, particularly useful for achieving reliable, reproducible, momentary contact, as is desirable in the operation of electronic keyboard actuators. The switch is characterized by a spring means carrying a weighted contact which, on being biased by a cam in a first direction away from a contact, is allowed to snap back, with a predetermined and in-

herent momentum, beyond its normal position to make a momentary electrical connection with a stationary contact and thereby make a temporary circuit through the switch.

3,811,025

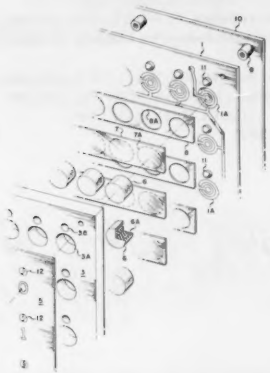
TOUCH PANEL SWITCH ASSEMBLY

Richard R. Bach, Downey, Calif., assignor to Lockheed Electronics Company, Inc., Plainfield, N.J.

Filed May 17, 1973, Ser. No. 361,284

Int. Cl. H01h *3/12, 9/16*

U.S. Cl. 200—317 **4 Claims**



A multi-layer touch panel switch assembly for particular application as a control panel for computers. The front panel is a smooth surface with no exposed switch handles. An operator depresses a selected area causing metallic surfaces to momentarily make contact, lighting a LED indicator located behind transparent areas in the panel. A silicone button having the desired flexibility and having excellent memory characteristics is used to transfer the pressure to close the electrical contacts. The front panel and switches may be inexpensively manufactured using printed circuit techniques and flow soldering operations.

3,811,026

PROCESS FOR BENZOTHIEPINS

Jean-Pierre Kaplan, Allschwil, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-LaRoche Inc., Nutley, N.J.

Filed Apr. 20, 1972, Ser. No. 245,757

Claims priority, application Switzerland, May 4, 1971, 6541/71; Feb. 28, 1972, 2919/72

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 TR **11 Claims**

A process for preparing 10-piperazinyl-10,11-dihydrodibenzo[*b,fd8*]thiepins by reducing the corresponding enamine with an alkali metal borohydride in the presence of a strong acid, is described.

3,811,027

CONTROL SYSTEM FOR GAS-SHIELDED ELECTRIC WELDERS

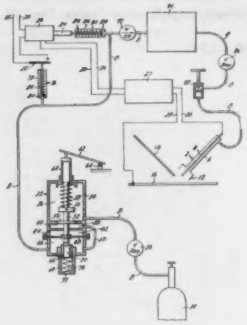
Ronald R. Strahan, 5408 N.E. Circle Dr., Kansas City, Mo.

Filed Aug. 29, 1973, Ser. No. 392,688

Int. Cl. B23k *9/16*

U.S. Cl. 219—74 **7 Claims**

A control system for electric welders wherein the torch electrode, and the welding site, is protected by a zone of surrounding inert gas supplied thereto, the control system consisting of a pedal operated regulator operable to supply inert gas at a continuously variable pressure through a range extending well above the pressure required to supply the gas shield at the torch, the pressurized gas serving by variations of



its pressure to actuate and control the electric portion of the welder as desired, and to supply gas to the torch continuously at the desired low pressure and flow rate before, during and after actuation of the electric circuit.

3,811,028

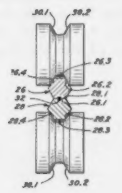
THERMOSTAT METAL AND METHOD OF MAKING

Ty Henry, and Rene A. Dubuc, both of Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 24, 1969, Ser. No. 836,086

Int. Cl. B23k *11/06*

U.S. Cl. 219—117 R **8 Claims**

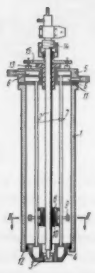


An improved composite edgelay bimetal material useful as a thermostat metal is shown to have two relatively wide and thin strips of metal of different coefficients of thermal expansion interfacially bonded together along corresponding thin lateral edges of the respective strips, the interfacial bond being a metallurgical bond which is substantially complete along the strip edges. The bond formed between the edges of the metal strips does not significantly alter the properties of the strip materials adjacent the bond and therefore avoids a thermostatically inactive portion of the composite material at the location of the interfacial bond. The improved composite edgelay material is formed by disposing two metal rods of hexagonal cross-sectional configuration or the like so that narrow surfaces of the rods are engaged along the length of the rods. The rods are resistance welded together along said engaged surfaces and, preferably after treatment for improvement of the weld bond between the rods, the rods are deformed in a rolling mill or the like to reduce the rods into respective wide and thin metal strips which are secured together along thin lateral edges of the strips by said bond.

3,811,029
PLASMATRONS OF STEEL-MELTING PLASMAARC FURNACES

Viktor Vasilievich Averyanov, Dmitrovskoe shosse, 13, korpus 3, kv. 37; Nikolai Iosifovich Bortnichuk, ulitsa Ermolovoi, 17, kv. 23, both of Moscow; Viktor Nikolaevich Garanov, Moskovskoi oblasti, Luganstkoe, ulitsa Zheleznodorozhnaya, 5, Istra, Moskovskoi oblasti; Mikhail Mironovich Krutyansky, Leninsky prospekt, 91, kv. 412, Moscow; Vladimir Sergeevich Malinovsky, Moskovskoi oblasti, prospekt Mira, 14, kv. 24, Khimki, Moskovskoi oblasti; Grigory Izrailevich Meerson, ulitsa Gastello, 12, kv. 84, Moscow; Lev Alexandrovich Maltsev, Moskovskoi oblasti, ulitsa Basova, 7, kv. 36, Istra, Moskovskoi oblasti, and Lidia Alexandrovna Panycheva, ulitsa Nizhe gorodskaya, 13, kv. 60, Moscow, all of U.S.S.R.

Filed Feb. 17, 1972, Ser. No. 227,523
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 P **3 Claims**

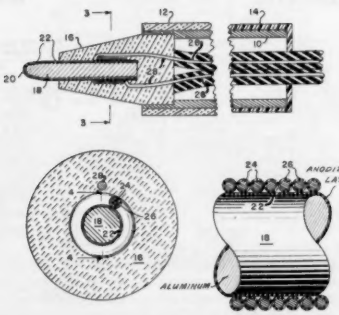


The plasmatron has a device used for supplying coolant to the nozzle, which device is essentially a flange with ducts, secured in the upper portion of the plasmatron, the ducts communicating with an interior space in the nozzle by means of pipes passed inside the housing of the plasmatron and rigidly connected by their end portions to the flange and to the nozzle. The plasmatron is provided with a device for radial adjustment of the cathode relative to the nozzle, the adjustment device being mounted on the pipes inside the housing.

3,811,030
ELECTRICALLY HEATED STYLUS FOR TRANSFERRING A PRINTING MEDIUM

Carlos W. Veach, 8921 Ashcroft Ave., Los Angeles, Calif.

Filed Nov. 15, 1971, Ser. No. 198,516
Int. Cl. H05b *3/00*
U.S. Cl. 219—237 **4 Claims**

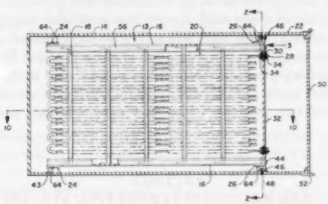


A hand manipulated electrically heated stylus tool for transferring insignia to an article from a ribbon or sheet having a coating on one face thereof subject to release and transfer to an article to be printed operates on a 115 volt power supply without use of a voltage reducing transformer or temperature control means. The tool includes an aluminum stylus having a first portion enclosed in a low thermal conductivity support carried at the end of a handle and a second portion projecting from the support to terminate in a work contacting tip. The entire outer surface of the stylus is anodized to form a hard wear resistant electrically insulative layer thereon. A heating element formed from electrically insulated resistance wire is coiled about the first portion of the stylus with the insulation thereon abutting the anodized layer. The arrangement is such that the anodized layer acts as a back-up insulation between the heating element and stylus to prevent short circuiting of the heating element should the insulation on the resistance wire fail. Additionally, in the further event of the breakdown of the anodized layer about the first portion of the stylus, the operator is protected by reason of the electrical insulation afforded by the intact anodized layer covering the exposed second portion of the stylus.

3,811,031
DUCT ELECTRICAL HEATER UNIT

Roby C. McBride, Limestone, and Howard Owens, Jonesboro, both of Tenn., assignors to TPI Corporation, Johnson City, Tenn.

Filed Jan. 29, 1973, Ser. No. 327,581
Int. Cl. H05b *3/06*
U.S. Cl. 219—374 **7 Claims**



An electrical resistance heater module or unit for insertion into ductwork, said unit having electrical resistance elements supported in a frame the side members of which have locator means in the nature of interfitting shoulders providing lateral and normal stops which allows the individual units to be positioned in side by side relation in a registered manner and easily assembled into a composite heater of the desired heating capacity, or disassembled therefrom for ease of repair or replacement of separate units or the resistance elements thereof.

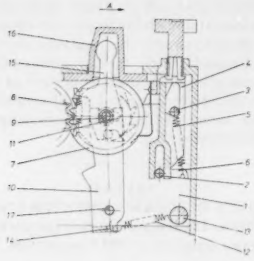
3,811,032
MECHANICAL COUNTER

Hans Neher, Ma Schinenbautechniker, Hausen am Tann, Germany, assignor to J. Hengstler K. G., Uhlandstrasse, Germany

Filed June 4, 1973, Ser. No. 366,621
Claims priority, application Germany, Sept. 23, 1972, 2246850
Int. Cl. G06c *15/42*
U.S. Cl. 235—1 C **6 Claims**

A mechanical counter comprises a plurality of presettable digit wheels, a plurality of counting digit wheels associated with respective ones of said presettable digit wheels, and a lever, which is movable about a pivotal axis. Said presettable digit wheels are carried by said lever for rotation about an axis which is parallel to and spaced from said pivotal axis. The lever is pivotally movable between a counting position, in which said presettable digit wheels are in engagement with said counting digit wheels and adapted to be driven thereby,

and a presetting position, in which said presettable digit wheels are disengaged from said counting digit wheels. A presetting mechanism is provided for presetting each of said presettable digit wheels and has teeth on said presettable digit wheel, first and second stationary cross-bars, which are transversely spaced apart and extend parallel to said pivotal axis, a presetting slider having a stepping nose and a lug, a tension spring connected between said lug and said first cross-bar, and actuating means operable to move said slider against the force of said spring from said first position to a second position. The tension spring tends to return said slider from said second



position to said first position. Said first and second cross-bars limit said movement of said slider to said first and second positions, respectively. Constraining means are provided, which constrain said slider to move from said first position to said second position along such a path that said nose engages one of said ratchet teeth and imparts a predetermined angular movement to said presettable digit wheel when said lever is in said presetting position, and which permit said nose to skip said ratchet teeth as said slider returns from said second position to said first position when said lever is in said presetting position.

3,811,033

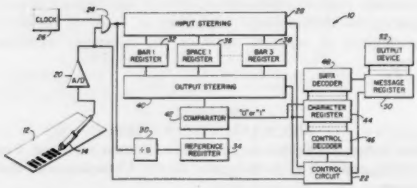
CODED RECORD INTERPRETING SYSTEM

Carlos B. Herrin, Bellbrook; Ross C. Humbarger, Fairborn, and James L. Vanderpool, Centerville, all of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Filed June 29, 1971, Ser. No. 157,869

Int. Cl. G06k *7/08*

U.S. Cl. 235—61.11 E **6 Claims**



A machine readable, binary coded record or label includes N alternating bars and spaces of different reflectivity in which the widths of the bars and spaces are assigned one of two values representing a binary "1" or a binary "0." Gates controlled by bar and space widths gate clock pulses in sequence into N width registers to determine and store widths of the bars and spaces forming a complete code. The average width of these same bars and spaces is also determined by coupling the total number of clock pulses supplied to the width counters through a divide-by-N counter to a comparison register. The average width stored in the comparison register is then compared in a comparator with the actual widths of the individual bars and spaces stored in the width registers to determine the "1" and "0" significance of the bars and spaces. The determined bits are collected in a character register and transferred to a message register or output device.

3,811,034

SIGNAL RECOGNITION SYSTEM

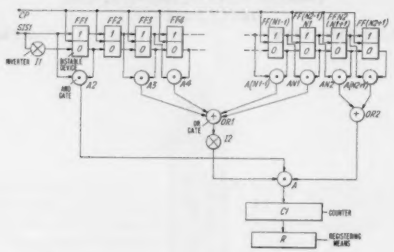
Raymond Martin Florent Terryn, Borgerhout, Belgium, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Apr. 4, 1972, Ser. No. 241,041

Claims priority, application Netherlands, Apr. 8, 1971, 714722

Int. Cl. G06k *7/00, 7/016, 9/00*

U.S. Cl. 235—61.11 R **6 Claims**



This signal recognition arrangement is disclosed to read, for example, a document stamp comprising five vertical bars, wherein no synchronization is required in taking into consideration document speed variations relative to the counting operation based on generated clock pulses (period of T2). In taking these variations into account the period of the signal to be recognized is allowed to change between two predetermined limits (N1T2 and N2T2), each determined by a whole number of clock pulse periods. Each time two consecutive input signals of a series of input signals of period T_1 (T_1 much greater than clock pulse period T_2) disposed between the predetermined limits are detected, a pulse is recorded in a four-count counter. A count of four in the counter records a recognition signal in a register, which recognition signal means that the five consecutive input signals have been recognized.

3,811,035

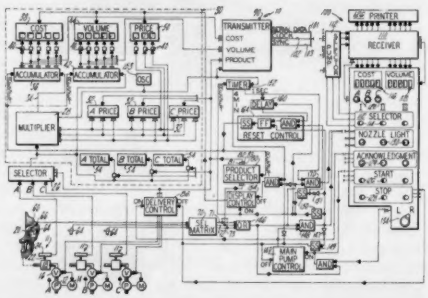
FLUID DELIVERY CONTROL SYSTEM

Peter P. Brunone, Vernon, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.

Filed June 6, 1972, Ser. No. 260,249

Int. Cl. G06m *1/12*

U.S. Cl. 235—92 FL **10 Claims**



A fuel dispensing system adapted for self-service operation as well as conventional operation with a service station atten-

dant. The system comprises a plurality of delivery subsystems, each adapted to selectively deliver a plurality of different grades of gasoline, and a remote control subsystem adapted to be manned for controlling the operation of each of the delivery subsystems. The control subsystem is connected to each delivery subsystem such that the cost, volume and grade of gasoline of each delivery can be selectively displayed at the manned remote control station.

3,811,036

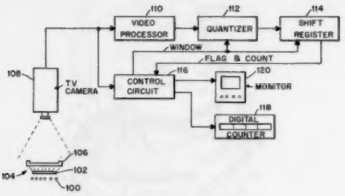
MICRO-BIOLOGICAL COLONY COUNTER

Russell C. Perry, Smithtown, N.Y., assignor to Artek Systems Corp., Farmingdale, N.Y.

Filed Sept. 19, 1972, Ser. No. 290,403

Int. Cl. G06m *11/02*

U.S. Cl. 235—92 PC **18 Claims**



An automatic colony counter which includes a television camera for viewing a sample being scanned. The output from the television camera is sent through control circuitry to a television monitor. The video signal is also processed and quantized to produce a digital count representing the number of colonies counted and also to produce a flag signal which causes an illuminated dot to be superimposed on each colony counted, thereby insuring that all the colonies in the sample have been counted.

3,811,037

DIGITAL DATA CORRECTOR

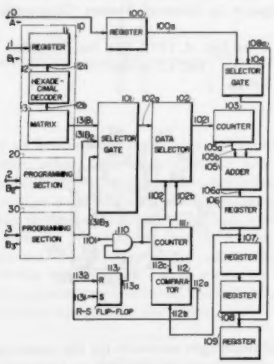
Akira Kitano, Nagoya, Japan, assignor to Nippondenso Co., Ltd., Aichi-ken, Japan

Filed July 5, 1972, Ser. No. 269,141

Claims priority, application Japan, July 7, 1971, 46-50102

Int. Cl. G06f *1/02, 15/50*

U.S. Cl. 235—152 **2 Claims**



In a system for correcting digital data, a first register for storing a basic digital input and a second register for storing one or a plurality of corrective digital inputs are provided. A program section including said second register samples digital program data according to a predetermined program in response to the corrective digital inputs stored in the second register and a data selector picks up digital program data corresponding to the basic digital input from among the digital program data sampled by the program section, wherein the digital program data picked up by the data selector is added to the basic digital input.

3,811,038

PSEUDO-RANDOM NUMBER GENERATORS

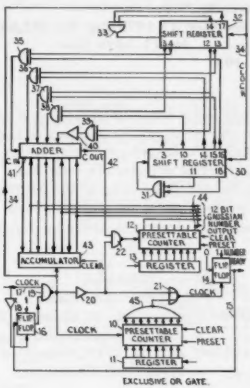
Stewart Fiddian Reddaway, Baldock, England, assignor to International Computers Limited, London, England

Filed Sept. 13, 1972, Ser. No. 288,794

Claims priority, application Great Britain, Sept. 15, 1971, 42902/71

Int. Cl. G06f *7/38*

U.S. Cl. 235—152 **7 Claims**



A pseudo-random number generator produces a substantially Gaussian distribution of output numbers from a succession of uniform random numbers. In each cycle uniform random numbers are produced and applied to an adder operative to form cumulative sums. A counter is responsive to carry signals from the adder and the outputs of the adder and counter are combined to form an output pseudo-random number. The number of permitted adding operations is preset.

3,811,039

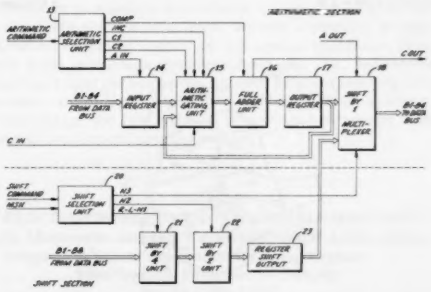
BINARY ARITHMETIC, LOGICAL AND SHIFTER UNIT

John P. Stafford, Oklahoma City, Okla., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Feb. 5, 1973, Ser. No. 329,489

Int. Cl. G06c *7/50*

U.S. Cl. 235—175 **15 Claims**



The arithmetic logic unit and position scaler receives information from a data bus, provides arithmetic functions such as

add, logical AND and exclusive OR, and shift manipulations to the information received from the data bus, and then directs the resultant information to the same data bus. The information bit position scaler or shifter includes logic for shifting bit information in a right, left or circular mode. The position scaler provides layers of shifts with the last shift of one being performed in a multiplexer unit which is common to the arithmetic logic unit.

3,811,040

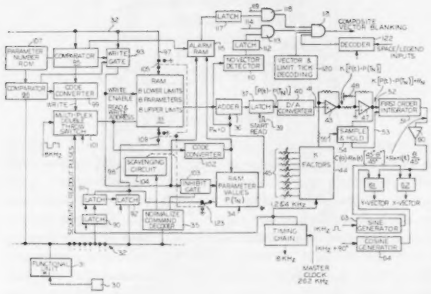
VECTOR CONTOUR PLOT OF PHYSIOLOGICAL PARAMETERS

Phillip T. Weinfurt, Brookfield, and Robert P. Lijewski, Milwaukee, both of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Sept. 27, 1972, Ser. No. 292,605

Int. Cl. A61b *5/04*

U.S. Cl. 235—193 **18 Claims**



Equiangularly spaced vectors correspond respectively with physiological parameters such as heart rate, blood pressure and others. The ends of the vectors are connected and preferably form a circular contour on an oscilloscope display screen or printed readout. Variation of the vectors from their reference or normalized value causes the contour to change. Converse operation is also explained. Limit markers for each vector parameter are displayed. An algorithm for representing the parameters as a contoured figure is presented. The plot generator may be built with analog or digital devices or both.

3,811,041

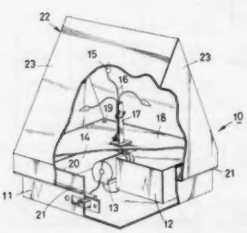
NOVELTY TYPE LIGHT DEVICE

Teruko Matsushita, Shizuoka, Japan, assignor to Yoshie Ito, Tokyo, Japan, a part interest

Filed Apr. 5, 1973, Ser. No. 347,425

Int. Cl. F21v *33/00*

U.S. Cl. 240—2 R **3 Claims**



A novelty type light device in combination with a music box for providing a peculiar "infinity" effect. A switching means is provided for alternately illuminating and extinguishing a plurality of miniature incandescent light bulbs, and said means comprises a plurality of contact strips, a particular one of which is disposed for engagement with the path of rotation of a cam wheel mounted on a drive shaft driving a pinned barrel in the music box.

3,811,042

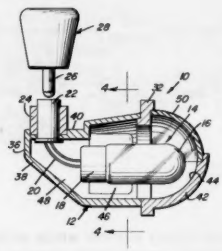
LICENSE PLATE LAMP ASSEMBLY

Charles R. Morrison, Frewsburg, N.Y., assignor to Truck-Lite Company, Inc., Jamestown, N.Y.

Filed Aug. 29, 1972, Ser. No. 284,592

Int. Cl. B60q *1/00, 3/00*

U.S. Cl. 240—7.1 R **4 Claims**



A miniature lamp assembly for illuminating a license plate includes a housing mounted by a flange at its forward end. A lamp bulb positioned within the housing projects from the forward end and is enclosed by an internally reflective hood and a transparent cover from which illumination is directed transverse to the longitudinal axis of the bulb and housing. A terminal connector projecting from the rear end of the housing perpendicular to the longitudinal axis establishes an electrical connection between a power supply and the bulb terminal leads.

3,811,043

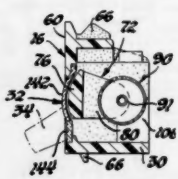
MAP AND FLOOD LIGHT ASSEMBLY

Kenneth P. Cope, and Warren Pearce, Jr., both of Warren, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 4, 1972, Ser. No. 312,208

Int. Cl. B60q *3/04*

U.S. Cl. 240—8.16 **3 Claims**



A map and flood light assembly for the passenger compartment of a motor vehicle wherein a switching shutter is manually pivotable with respect to a combination lens and a light bulb between a flood light position exposing a tinted portion of the lens to the light bulb and a map light position exposing a clear portion of the lens to the light bulb. The switching shutter cams a contact arm to connect the light bulb to a variable voltage headlight circuit in the flood light position for illuminating control knobs, switches and other instrument panel components and in the map light position to con-

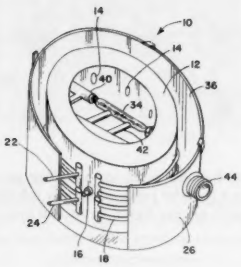
nect the light bulb to a constant voltage courtesy light circuit for providing courtesy lamp illumination in the passenger compartment.

3,811,044

LIGHT SHIELD AND COOLING APPARATUS

Thomas G. Meador, Jr., Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 10, 1972, Ser. No. 305,638
Int. Cl. F21v *29/00*
U.S. Cl. 240—47 **3 Claims**



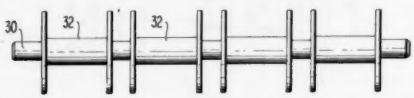
A light shield and cooling apparatus for a high intensity ultraviolet lamp including water and high pressure air for cooling and additional apparatus for shielding the light and suppressing the high pressure air noise.

3,811,045

COIL MANUFACTURING PROCESS

Norman E. Turner, Hailstead, Pa., and James J. McGonigal, Binghamton, N.Y., assignors to Magnetic Laboratories Inc., Hailstead, Pa.

Filed Apr. 19, 1972, Ser. No. 245,353
Int. Cl. B29d *3/00*
U.S. Cl. 264—250 **2 Claims**



A plurality of bobbins are simultaneously molded directly onto a common arbor. The arbor with the bobbins is then placed in a multiple coil winding machine for the simultaneous winding of a coil on each bobbin. Various finishing and testing operations may then be performed on the coil while still using the arbor as a carrier. The entire assembly is then placed in a molding apparatus whereby each of the coils is simultaneously overmolded while still in place on the common arbor. Subsequent to the overmolding operation, the individual encapsulated coils may be stripped from the arbor.

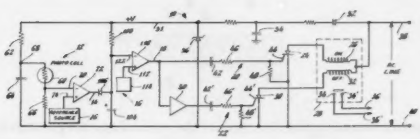
3,811,046

LIGHT SENSITIVE SECURITY SYSTEM

Herbert Levick, Wilton, Conn., assignor to Le Van Electronics, Inc., Wilton, Conn.

Filed Jan. 22, 1973, Ser. No. 325,874
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **6 Claims**

A light sensitive circuit for protection of an area is described. In a first embodiment, a single photocell is mounted together with a control circuit in a housing which fits in a conventional electrical wall box. The photocell is connected in a capacitor discharge circuit to enable a comparison amplifier to recognize whether the photocell is exposed to a normal ambient light change such as from night to daylight or to the beam from a flashlight. A pulse operated latching relay



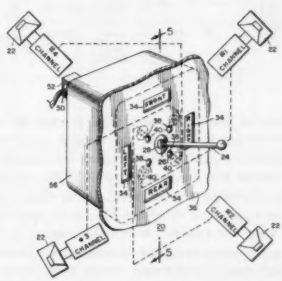
is used to effect a protective response when the photocell is suddenly exposed to a source of light. In an alternate embodiment for a light responsive protection circuit, a pair of photocells are used. One photocell is located to operate to control the enabling of a gate while the other photocell responds to a source of light to effect a desired protective response. A plurality of photocells may be accommodated.

3,811,047

BALANCE CONTROL

Robert Shragal, Bellwood, Ill., assignor to Wells-Gardner Electronics Corporation, Chicago, Ill.

Filed Oct. 18, 1972, Ser. No. 298,575
Int. Cl. H01j *39/12*
U.S. Cl. 250—208 **30 Claims**



A balance control comprising an elongated control stick adapted to be angularly manipulated relative to a longitudinal neutral axis about a pivot point thereon, a plurality of light sensitive, electronic control devices spaced equidistant from said point in opposite directions from said axis, and means forming a light pattern having areas of different intensity and position controlled by manipulation of said stick to simultaneously change the light intensity of said light pattern on said respective electronic control devices.

3,811,048

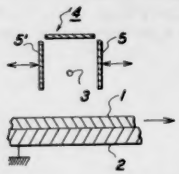
ELECTROPHOTOGRAPHIC CHARGING APPARATUS

Seiji Matsumoto, and Isoji Takahashi, both of Asaka, Japan, assignors to Xerox Corporation, Stamford, England

Filed Sept. 12, 1972, Ser. No. 288,452
Int. Cl. G03g *13/00*
U.S. Cl. 250—326 **7 Claims**

A corona shield is positioned about a corona wire to shield against radiation from the wire in all but the desired direction

(onto a xerographic surface). The shield members are movable in various directions relative to the corona wire so as to



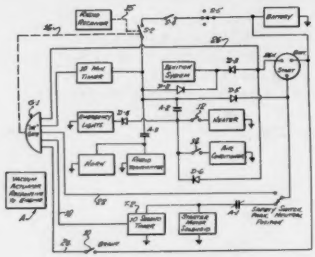
control intensity and direction of the corona discharge, thus to control the density of the electrostatic image on the xerographic surface.

3,811,049

REMOTE CONTROL ENGINE STARTER

Donald M. Hildreth, 117 Ocean Pk. Blvd., Santa Monica, Calif., and Edward P. Tyler, 10644 Tuxford St., Sun Valley, Calif.

Filed June 21, 1972, Ser. No. 264,898
Int. Cl. F02n *11/08*
U.S. Cl. 290—38 **19 Claims**



In addition to the usual electrical circuit for the ignition system and the starter motor, the engine is provided with a parallel auxiliary circuit that is closed by remote control. A first timer opens the auxiliary circuit if the engine does not start in approximately ten seconds. If the engine does start, a second timer opens the auxiliary circuit in approximately ten minutes to stop the engine. When the engine starts, a switch means of a vacuum actuator de-energizes both the starter motor and the ten second timer. At the same time, the throttle advance means of the vacuum actuator, which advanced the throttle prior to engine starting, acts to slowly allow the throttle to move to the normal engine-idle position. After the engine starts, the switch means of the vacuum actuator turns on either the heater or the air conditioner, and in addition creates a signal to indicate the starting of the engine. The signal created may be used to energize one or more of the horn, the vehicle emergency lights, and a radio transmitter.

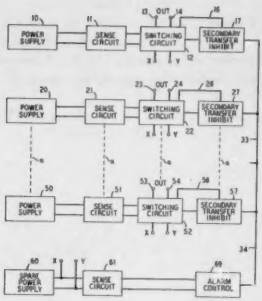
3,811,050

INTERLOCKED POWER SUPPLY TRANSFER CIRCUIT TO INHIBIT SECONDARY TRANSFER AFTER A PRIMARY TRANSFER

Robert Wilson Michelet, Madison, and Edward Jerome Silverman, Rockaway, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed July 13, 1973, Ser. No. 379,059
Int. Cl. H02h *11/00*
U.S. Cl. 307—64 **5 Claims**

A transfer circuit to substitute a spare power supply for a failed one of a plurality of power supplies includes a logic circuit interlock arrangement to inhibit secondary transfers after the switching circuitry of the transfer circuitry has transferred the load from a first failed power supply to a spare power supply. The logic circuit interlock arrangement includes



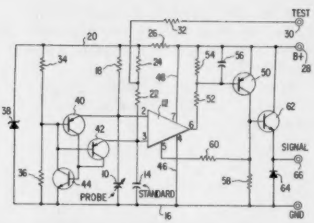
NAND gates and diode gates to complete an energy signal path to activate a transfer relay and apply inhibiting signals to disable subsequent energy signal paths and prevent secondary transfers.

3,811,051

CAPACITANCE RESPONSIVE DETECTOR SYSTEM

Kenneth C. Merrell, Brea, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 3, 1972, Ser. No. 303,587
Int. Cl. H01h *35/18*
U.S. Cl. 307—118 **26 Claims**



A capacitance responsive detector system having charging circuits for a variable and standard capacitor and including a differential comparator which is responsive to the difference in the charging rates of the variable and standard capacitors for producing an output signal in accordance therewith. The variable capacitor can be any type of sensor or transducer which senses a property and provides a capacitance output accordingly.

3,811,052

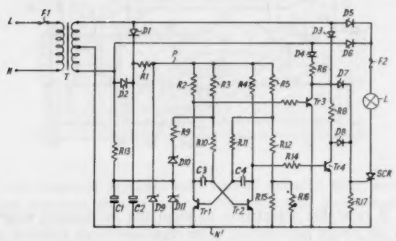
ELECTRICAL FREQUENCY INDICATING MEANS

Peter George Billing, Stamford, England, assignor to N. J. Froment & Co., Stamford, England

Filed Jan. 24, 1973, Ser. No. 326,422
Int. Cl. H03k *5/20*
U.S. Cl. 307—233 **3 Claims**

The invention describes means for monitoring electrical supply frequency suitable for use with an AC generator coupled to a prime motor e.g. through the auxiliary gearbox of an agricultural tractor to the engine thereof, for the purpose of providing emergency AC electrical power for lighting or heating in the event of a cut in normal power supplies. The moni-

toring means includes a pulse generator operable to produce a series of pulses within a predetermined operating range and a switching device operable when the frequency of pulses of the



normal AC supply are outside acceptable limits compared with the monitoring means. The use of a tractor makes the invention of particular importance to farmers having milking machinery, chicken feeders and incubators to run.

3,811,053

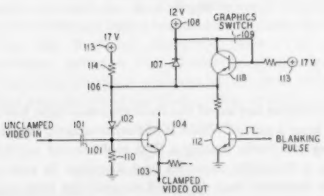
VIDEO CLAMPING CIRCUIT WITH VARIABLE CLAMPING LEVEL DURING BLANKING

Nissin Habib, Neptune, N.J., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Dec. 15, 1972, Ser. No. 315,491

Int. Cl. H03k *5/08*

U.S. Cl. 307—237 **5 Claims**



Unclamped video signals are applied to the first plate of a capacitor, the second plate of which is discharged by a resistor to ground, the discharge being limited by a clamping diode. The clamping diode is connected between the capacitor and a resistor, which in turn is connected to a first voltage supply. A second diode, normally forward biased, connects the clamping diode to a second supply, thereby normally applying to the clamping diode the voltage of the second supply plus a forward diode drop. A transistor has its collector-emitter circuit connected across the second diode; a normally closed switching means bridges the collector and base of the transistor. During video blanking intervals, the second diode is reverse biased and the effective diode of the transistor is energized, thereby applying to the clamping diode the voltage of the second supply minus a forward diode drop. During graphics mode transmission, the switching means is opened, thereby applying to the clamping diode, during blanking, the voltage of the second supply minus the collector-emitter drop of the transistor, which is saturated.

3,811,054

MANUALLY OPERATED SWITCH

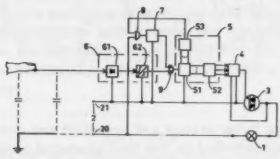
Carl Rune Wern; George Herman Wern, and Lars Ake Wern, all of Vartavagen 59, 115 38, Stockholm, Sweden

Filed May 15, 1973, Ser. No. 360,410

Claims priority, application Sweden, May 23, 1972, 6712

Int. Cl. H03k *17/00*

U.S. Cl. 307—252 H **3 Claims**



The invention relates to a manually operated switch, suited for connection between a lamp load and a supply circuit in a lighting installation for alternating current and comprising a semiconducting rectifier with a gate electrode.

3,811,055

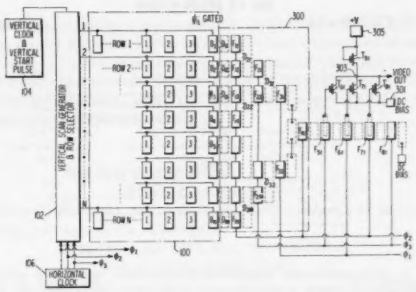
CHARGE TRANSFER FAN-IN CIRCUITRY

Paul Kessler Weimer, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 13, 1971, Ser. No. 207,215

Int. Cl. H01l *19/00*

U.S. Cl. 307—304 **14 Claims**



A charge transfer circuit with converging conduction paths between a plurality of signal input points and a single output terminal. Signals, applied to only one input point at a time, are propagated from any one of the input terminals to the output terminal with equal time delay and with little loss of signal level by proper selection of the nodal capacitances along the paths and at the output terminal.

3,811,056

VELOCITY SENSOR

Kosaku Baba, Yokohama, and Kiyoshi Wazawa, Fujisawa, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 3, 1972, Ser. No. 294,584

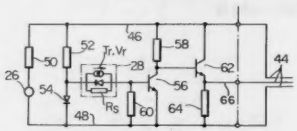
Claims priority, application Japan, Dec. 6, 1971, 46-113945

Int. Cl. H03k *3/42*

U.S. Cl. 307—311 **13 Claims**

A sensor for measuring the revolution speed of a rotary element which may be a wheel axle of a motor vehicle. The sensor has a rotary disc which is positioned between light-emissive and light-sensitive means which are aligned with each other. The rotary disc has a number of apertures at its entire periphery, which apertures are successively brought into

alignment with the flux of the light projected from the light-emissive means to the light-sensitive means as the disc is driven for rotation in synchronism with the rotary element to be measured. The light-sensitive means thus produces a train of pulses having a frequency related to the revolution speed of the rotary disc. The pulses are fed to an electric circuit arrangement for being shaped and amplified and delivered to a system to be controlled on the thus produced output signals. The circuit arrangement includes means which is adapted to compensate for errors which would otherwise be involved in the output signals where the sensor is subject to variation in the ambient temperature.



3,811,057

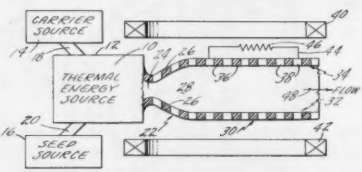
NONEQUILIBRIUM MAGNETOHYDRODYNAMIC DEVICE

Robert T. Brown, Manchester; Robert H. Bullis, Avon; Thomas L. Churchill, Glastonbury, all of Conn.; Robert J. Hall, Cambridge, England; Edmund C. Lary, Glastonbury, Conn.; William L. Nighan, III, Manchester, Conn., and Elliot R. Schulman, West Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 29, 1971, Ser. No. 213,374

Int. Cl. H02k *45/00*

U.S. Cl. 310—11 **4 Claims**



A nonequilibrium magnetohydrodynamic system in which the working fluid is subjected to a magnetic field over the entire distance between the throat of the expansion nozzle and the exit plane of the generator region of the device is disclosed; the system is operable without an external power source otherwise necessary for auxiliary ionization of the working medium. Also disclosed are the flow velocity, magnetic field intensity, pressure and temperature parameters which must be satisfied to produce the operational conditions.

3,811,058

ROTARY-TO-RECIPROCATING DEVICE

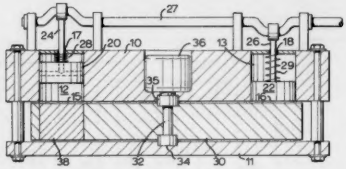
Zane Chadrick Kiniski, Toronto, Ontario, Canada, assignor to Unit +1, Toronto, Canada

Filed Apr. 2, 1973, Ser. No. 346,783

Int. Cl. H02k *7/06*

U.S. Cl. 310—80 **9 Claims**

A reciprocating device is disclosed which converts the magnetic force of permanent magnets into reciprocating motion. The reciprocating device comprises at least one cylinder chamber formed in an engine block. The cylinder chamber is open-bottomed. A piston which is made of a magnetic material having a predetermined polarization is slidably disposed in the cylinder chamber. A disc is rotatably mounted to the engine block. The disc has a surface therein movable relative to the open bottom of the cylinder chamber. At least one permanent magnet having a magnetic polarization identical to that of the piston is mounted on the surface of the disc. The disc is rotatable selectively to align the permanent magnet with the piston periodically. The repulsion force between the piston and the permanent magnet causes the piston to reciprocate in the cylinder chamber.



3,811,059

ELECTRON GUN DEVICE OF FIELD EMISSION TYPE

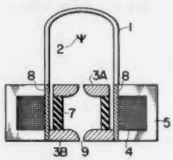
Shinjiro Katagiri, Hachioji, and Akira Tonomura, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 23, 1971, Ser. No. 211,201

Claims priority, application Japan, Dec. 24, 1970, 45-116718

Int. Cl. H01j *31/00*

U.S. Cl. 313—82 **5 Claims**



An electron gun device of the field emission type has an enclosure, at least a part of which is of non-magnetic material, an accelerating electrode having a first and second anode each comprising a magnetic material and disposed in said enclosure, and a focusing lens disposed outside the non-magnetic part of said enclosure, wherein gas is evacuated from said enclosure whereby a high intensity electron beam is obtained.

3,811,060

GASEOUS ELECTRODE SEGMENT TYPE DISPLAY DEVICE

Koji Tsujimoto, Yokohama, Japan, assignor to Ushio Electric Inc., Tokyo, Japan

Filed Sept. 6, 1972, Ser. No. 286,543

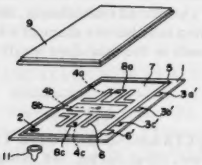
Claims priority, application Japan, Sept. 11, 1971, 46-70072; Mar. 21, 1972, 47-32362; May 16, 1972, 47-56308; May 16, 1972, 47-56309

Int. Cl. H01j *61/66*

U.S. Cl. 313—109.5 **9 Claims**

This invention relates to display device. The display device comprises a sealed body comprising a base plate of an electrically insulating material, and at least one indication region formed on said base plate, a first metallic film superposed on the base plate and having an end portion extending outwardly of said sealed body, a first ceramic coat interposed between

said electrically conducting metallic film in strip form and said first metallic film, at least one second metallic film representing a predetermined shape superposed on the base plate in such manner that predetermined portions of said first metallic

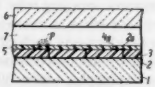


film are disposed adjacent said second metallic film, and a second ceramic coat interposed between said first metallic film and said second metallic film in such a manner that said predetermined portions of said first metallic film are exposed.

3,811,061
PLANE SURFACE DISCHARGE PLASMA DISPLAY PANEL

Norihiko Nakayama, Kobe; Yasunari Shirouchi, Akashi, and Toshinori Urade, Kobe, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 13, 1972, Ser. No. 297,267
Claims priority, application Japan, Oct. 15, 1971, 46-80935; Oct. 15, 1971, 46-81407
Int. Cl. H01j *7/42*; **H01k** *1/60*
U.S. Cl. 313—109.5 **13 Claims**

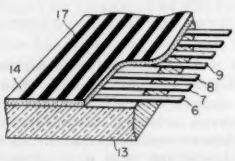


Plasma discharge display apparatus is disclosed, comprising an airtight envelope for receiving discharge electrode pairs formed on a common base plate and a dielectric layer formed overlaying the discharge electrode pairs. The discharge characteristics between the discharge electrodes of the respective pairs are made uniform irrespective of the curvature of the base plate and the shape of the airtight envelope.

3,811,062
GAS DISCHARGE PANEL

Shizuo Andoh; Norihiko Nakayama, both of Kobe, and Yasunari Shirouchi, Akashi, all of Japan, assignors to Fujitsu Limited, Kanagawa-ken, Japan

Filed Apr. 17, 1973, Ser. No. 352,061
Claims priority, application Japan, Apr. 18, 1972, 47-38299; Apr. 18, 1972, 47-38300; Apr. 18, 1972, 47-38301
Int. Cl. H01j *61/30*
U.S. Cl. 313—188 **7 Claims**

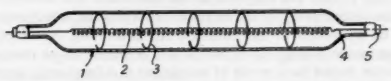


The gas discharge panel disclosed in this application is composed of parallel electrode groups, a dielectric layer for covering the electrodes and a gas discharge space or gap in which a firing spot is produced through the discharge space via the dielectric layer when an electric signal is applied to the electrode pairs. The above-mentioned dielectric layers provide a suppression layer having a predetermined pattern which partially decreases leakage from the discharge field into the gas discharge space, that is, decreases the gas discharge in a position where a gas discharge is not required. In the gas discharge panel having a function of self-shift, this suppression layer has the form of a metallic strip, positioned at a right angle to these electrodes, or of a dielectric strip having a high dielectric constant, and constitutes a shift channel for the gas discharge spot. Further this supression layer is useful for carrying out a read-only memory type gas discharge by providing a predetermined pattern.

3,811,063
ELECTRIC INCANDESCENT LAMPS

John Michael Rees; George Eric Coxon, and Robert Bernard Johnston, all of Thorn House, Upper St. Martin's Ln., London WC2H 9ED, England

Continuation-in-part of Ser. No. 317,813, Dec. 22, 1972, abandoned. This application May 29, 1973, Ser. No. 364,917
Int. Cl. H01k *1/50, 3/00*
U.S. Cl. 313—222 **11 Claims**

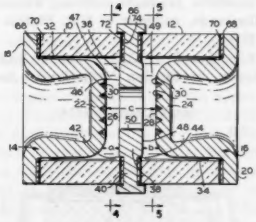


A tungsten-halogen cycle electric incandescent lamp contains a solid aromatic halide in the fill which dissociates when the lamp is heated to provide halogen to support the regenerative cycle. The aromatic halide can be hexabromobenzene or hexachlorobenzene and the fill may also include a halophosphonitrile.

3,811,064
SPARK-GAP DEVICE

Chester J. Kawiecki, Santa Barbara, Calif., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Dec. 20, 1972, Ser. No. 316,736
Int. Cl. H01j *17/00, 21/00*
U.S. Cl. 313—325 **12 Claims**



A miniature three-element spark-gap device comprises a ceramic enclosure supporting aligned end electrodes extending therewithin, and a solid disc center electrode establishing first and second gaps with the end electrodes. The solid disc center electrode is apertured so that an arc discharge across one gap will illuminate the other, producing ionization and causing immediate breakdown of the other gap.

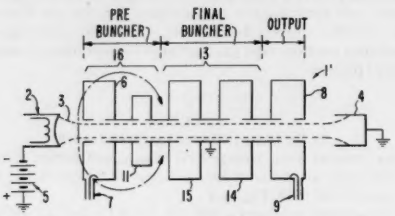
3,811,065
VELOCITY MODULATION MICROWAVE TUBE EMPLOYING A HARMONIC PREBUNCHER FOR IMPROVED EFFICIENCY

Erling L. Lien, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Continuation of Ser. No. 767,774, Oct. 15, 1968, abandoned. This application Feb. 14, 1973, Ser. No. 332,447

Int. Cl. H01j *25/10*

U.S. Cl. 315—5.43 **10 Claims**



The velocity modulation microwave tube includes an electron gun for projecting a stream of electrons over an elongated beam path to a collector structure. An input circuit and an output circuit are disposed at the upstream and downstream ends, respectively, of the beam for applying microwave energy to be amplified to the tube and for extracting the amplified microwave energy from the beam. A penultimate resonator circuit, tuned for a mode of resonance at a frequency near the passband of the tube, is provided just upstream of the output circuit for bunching the current density of the beam passing into the output circuit. A harmonic floating resonator structure is disclosed along the beam path intermediate the input circuit and the penultimate resonator. The harmonic resonator is tuned for a mode of resonance approximately at a frequency corresponding to a harmonic higher than the first of the center frequency of the passband of the tube. The harmonic resonator serves as a prebuncher to bunching the electrons of the beam prior to their entering the final stage of bunching performed by the penultimate floating resonator. The combined action of the harmonic prebuncher resonator and the penultimate final buncher resonator is to substantially increase the radio frequency conversion efficiency of the tube.

3,811,066
TELEVISION CAMERA COMPRISING AN INTERFERENCE-FREE MESH CONNECTION CONDUCTOR

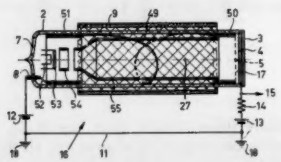
Benedictus Timotheus Johannes Holman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 320,962

Claims priority, application Netherlands, Jan. 28, 1972, 7201226

Int. Cl. H01j *31/26*

U.S. Cl. 315—10 **17 Claims**



In order to suppress interference signals caused by the line deflection field across the capacitive interruption between the mesh electrode and the target, the mesh connection loop of a television camera having a separated mesh electrode is constructed such that effectively it encloses substantially no magnetic flux of the line deflection field. The return field which is usually concentrated in the wall of a ferromagnetic screening bush mounted about the camera tube is taken into account in this respect. In a preferred embodiment, the mesh connection wire in the camera tube has the shape of a helix having a pitch which corresponds to the axial field length of the line deflection field.

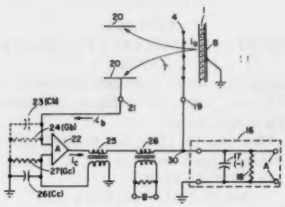
3,811,067
ULTRASONIC IMAGING TUBE

William R. Turner, Silver Spring, Md., assignor to Automation Industries, Inc., New York, N.Y.

Division of Ser. Nos. 79,135, Oct. 8, 1970, abandoned, and Ser. No. , , Division of Ser. No. 756,866, Sept. 3, 1968, Pat. No. 3,577,171. This application June 1, 1972, Ser. No. 258,635

Int. Cl. H01j *31/48*

U.S. Cl. 315—11 **4 Claims**



An improved ultrasonic imaging tube having a piezoelectric face plate or conversion plate, a controlling screen adjacent thereto and a collector electrode back of the screen for receiving current generated by the conversion plate. The collector current is utilized to control a video tube synchronized with the ultrasonic tube, and is shunted in feedback fashion to the screen to control terminal admittance thereof and thereby increase the signal to noise ratio of the system as well as to raise the effective signal level.

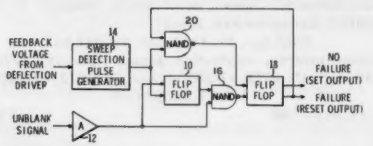
3,811,068
PROTECTION CIRCUIT FOR CATHODE RAY TUBES

Robert G. Curry, Jr., Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 30, 1971, Ser. No. 214,285

Int. Cl. H01j *29/70*

U.S. Cl. 315—20 **12 Claims**



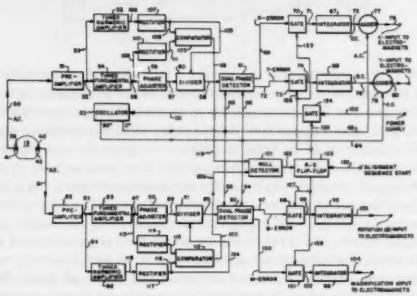
Described is a protective circuit for an electron beam device which gives a failure indication when the sweep signal fails and the electron beam is not properly deflected across the target. The circuit includes a bi-stable device which is set in a first output state in response to the unblank signal of the electron beam device and reset to a second output state in response to a sweep detection signal generator. The signal generator is triggered only when the sweep signal exceeds a predetermined threshold. When the signal generator is not triggered the bi-stable device is not reset and remains in its

first output state. Output circuitry provides an output failure signal responsive to the bi-stable device when it remains in its first output state for the entire unblank portion of the unblank signal. A gate in feedback relationship to the output circuitry prevents a false failure indication.

3,811,069
SIGNAL STABILIZATION OF AN ALIGNMENT DETECTION DEVICE

Terence W. O'Keeffe, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 20, 1972, Ser. No. 264,699
Int. Cl. H01j 29/70
U.S. Cl. 315—31 R **13 Claims**



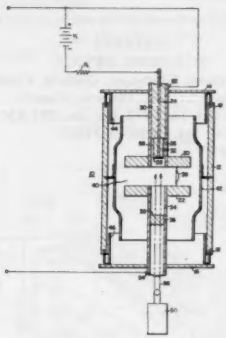
A radiation beam such as an electron beam of predetermined preferably polygonal cross-section is rapidly precision aligned with a radiation detector mark of like cross-section on a member such as a resist coated substrate by measuring the radiation induced output signal from the mark. The output signal is proportional to the portion or area of the mark irradiated by the beam. The impingement of the patterned radiation beam on the member is moved in a predetermined overlapping, preferably circular or elliptic pattern over the detector mark to modulate the output signal from the mark. At least two frequency signals are extracted from the output signal and compared with a preselected alignment relationship. The over-lapping pattern is changed in position, and the comparing and changing in position repeated until the extracted frequency signals compare in the preselected relationship. Preferably the rate at which the change in position proceeds is controlled by a ratio of the two frequency signals as the preselected alignment relationship is approached.

3,811,070
LASER INITIATED THREE ELECTRODE TYPE TRIGGERED VACUUM GAP DEVICE

Roy E. Voshall, New Alexandria, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 25, 1972, Ser. No. 300,616
Int. Cl. H05b 41/04
U.S. Cl. 315—150 **11 Claims**

A three electrode triggered vacuum gap device with the triggering mechanism being laser initiated. The triggering mechanism comprises a gas-saturated portion, which when heated by a triggering laser beam releases a gas. The gas released by the triggering mechanism is then ionized by an electric field, existing between the trigger electrode and the main electrode, starting a low power arc. The low power arc is then magnetically forced between the main arcing electrodes

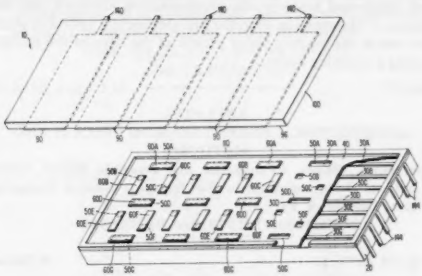


to initiate a main power arc. The laser-initated trigger provides electrical isolation between the vacuum gap device and the triggering control circuit.

3,811,071
DRIVE REGULATION AND DELAY CONTROL IN DISPLAY SYSTEMS

James A. Ogle, Neshanic Station, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed July 13, 1972, Ser. No. 271,576
Int. Cl. H05b 37/00
U.S. Cl. 315—169 TV **6 Claims**



Apparatus addressing multi-position display devices directly from semiconductor integrated circuits and driving the display electrodes without exceeding the limitation on voltage excursions for the outputs of such circuits. The apparatus develops and applies to threshold-responsive display devices, including gas discharge display tubes or display panels, only the amount of voltage that is needed to operate them. Potential for operating the device is accumulated in steps until the device fires, it being applied to the display electrodes of the device in response to open-circuit input signals. The potential is regulated to maintain ionization delay in the device as a certain fraction of the display period and the required selection voltages for the electrodes of the device are minimized.

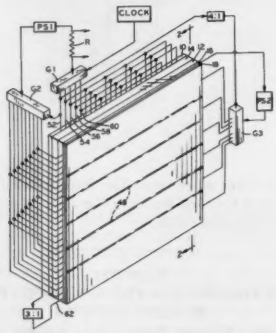
The potential for driving the cathodes is developed across a capacitance common to all of them, and a regulator circuit coupled to it and to the cathode drivers automatically increases the bias until the device fires. The potential that proves to be necessary to operate a device is stored for continued operation of it. The driver for a cathode element that is frequently operated alone is coupled to the regulator circuit

by a high impedance connection for increasing the energizing potential sufficiently to ensure ionization. The anodes are driven from semiconductor logic circuit often without intermediate circuit elements.

3,811,072
SCANNING DEVICE

Francis Jack Purchase, Kitchener, Ontario, Canada, assignor to Autotelic Industries, Ltd., Ontario, Canada

Filed Oct. 16, 1972, Ser. No. 297,830
Int. Cl. H05b *39/00*
U.S. Cl. 315—169 TV **15 Claims**

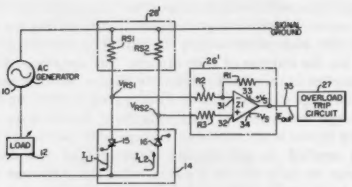


A scanning device in which an array of cathodes are in opposed relation to a matrix of anodes. The cathodes are successively addressed with one row of anodes being addressed for each cycle of addressing the cathodes. The anodes on the ends facing away from the cathodes have photosensitive elements and interposed between the photosensitive elements and the source of illumination therefor are electrically operable shutters which expose successive groups of the rows of the anodes during a scanning cycle.

3,811,073
ALTERNATING CURRENT SENSING CIRCUIT AND METHOD

Kenneth C. Shuey, Cridersville, and Donal E. Baker, Lima, both of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 5, 1973, Ser. No. 337,969
Int. Cl. H02h *3/08*
U.S. Cl. 317—31 **6 Claims**

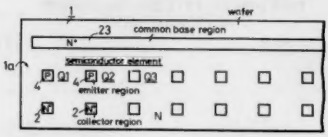


A full wave rectified voltage that is proportional to alternating current in a load circuit is developed by using inverse parallel switching devices having a rectifying characteristic, such as thyristors, to develop half wave rectified signals processed by an operational amplifier to produce the desired signal that is useful for purposes such as the input to an inverse time delay circuit.

3,811,074
SEMICONDUCTOR DEVICE AND APPARATUS USING THE SAME

Toshimasa Suzuki, and Yoshihiko Mizushima, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

Filed Apr. 4, 1972, Ser. No. 240,999
Claims priority, application Japan, Apr. 10, 1971, 46-22533; Aug. 16, 1971, 46-62186; Aug. 16, 1971, 46-62187; Aug. 16, 1971, 46-62188; Sept. 14, 1971, 46-71570
Int. Cl. H011 *11/10*
U.S. Cl. 317—235 K **18 Claims**

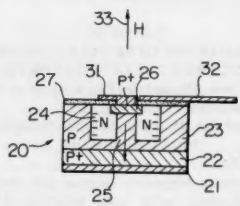


A semiconductor device having a plurality of semiconductor elements formed in a monolithic manner in a semiconductor wafer of a first conductivity type while being sequentially arranged, in which each of the plurality of semiconductor elements consists of at least a collector region formed in the semiconductor wafer and having the first conductivity type and higher conductivity than the semiconductor wafer, a base region formed in the semiconductor wafer and having the first conductivity type and higher conductivity than the semiconductor wafer, and a relatively small emitter region formed in the semiconductor wafer between the base and collector regions and having a second conductivity type, at least the emitter region of each semiconductor element being adapted for exclusive use therewith and each semiconductor element presenting a current controlled negative resistance characteristic between the emitter and collector regions with a biasing power source being applied between the base and collector regions, and in which the distance between two adjacent ones of the semiconductor elements is selected so that when one of the two adjacent semiconductor elements is in the on state with the biasing power source being applied between the base and collector regions of the two semiconductor elements, the turnover voltage of the other semiconductor element may become low. A shift register, photoelectric conversion apparatus, logic functional circuit or apparatus and so on which employ such a semiconductor device.

3,811,075
MAGNETO-SENSITIVE DEVICE HAVING PN JUNCTION

Kazumasa Shiga, Osaka, Japan, assignor to Matsushita Electric Industrial Company Limited, Osaka, Japan

Filed May 23, 1972, Ser. No. 256,157
Claims priority, application Japan, May 26, 1971, 46-36526
Int. Cl. H011 *5/00, 19/00*
U.S. Cl. 317—235 H **4 Claims**



A two terminal positive feedback magnetic sensitive semiconductor device having P-type regions and N-type regions in

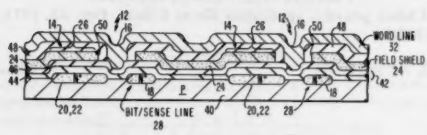
which a channel is formed between PN junctions. The width of the channel is controlled by Lorenz's force in response to the strength of the magnetic field and as a result an input current passing through the channel is controlled.

3,811,076

FIELD EFFECT TRANSISTOR INTEGRATED CIRCUIT AND MEMORY

William Michael Smith, Jr., Williston, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,395
Int. Cl. H01l 19/00
U.S. Cl. 317—235 R 8 Claims



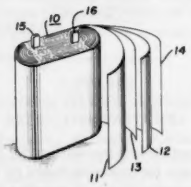
An integrated circuit structure of a field effect transistor (FET) serially connected to a capacitor has the capacitor formed by one of the current flow electrodes of the FET and by a polycrystalline silicon (polysilicon) field shield. The structure includes, in a semiconductor (e.g., silicon) substrate, of, e.g., *p*-type conductivity, two spaced regions of opposite conductivity type to that of the substrate, e.g., *n*-type. One of the spaced regions serves as a first plate of the capacitor and as a first current flow electrode of the FET. The other region serves as a second current flow electrode of the FET. A first insulating layer on the substrate has a polysilicon layer on it covering the two spaced regions and is directly and ohmically electrically connected to the substrate. The portion of the polysilicon layer over the spaced region serving as the first plate of the capacitor serves as the second plate of the capacitor. A second insulating layer covers the polysilicon layer and a second layer of conducting material, e.g., aluminum, is provided on the second insulating layer. The second conductive layer overlies the space between the two spaced regions and serves as a gate electrode for the FET. When employed as a memory circuit, the spaced region of opposite conductivity type to the substrate which does not serve as the first plate of the capacitor is desirably a diffused bit/sense line and the second conducting layer serves as a word line.

3,811,077

LIQUID IMPREGNATED CAPACITOR

Ralph H. Munch, Webster Groves, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed May 4, 1973, Ser. No. 357,158
Int. Cl. H01g 3/195
U.S. Cl. 317—258 8 Claims



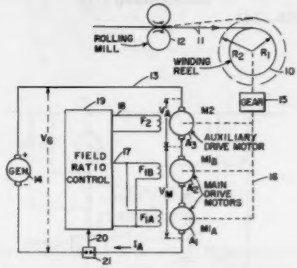
Electrical capacitors are impregnated with liquid dielectric compositions comprising mixtures of diaryl sulfones and esters of carboxylic acids.

3,811,078

DC MOTOR DRIVE SYSTEM FOR WINDING REEL

Joseph A. Greblunas, Scotia, N.Y., assignor to General Electric Company, Salem, Mass.

Filed Nov. 28, 1972, Ser. No. 310,126
Int. Cl. H02p 7/74
U.S. Cl. 318—99 4 Claims



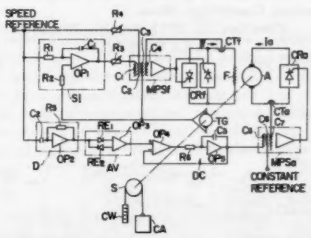
A DC motor drive system for driving a winding reel at constant horsepower over a wide range of speeds. Two or more main drive motors and one or more auxiliary drive motors are series connected in a power supply circuit. The field circuits of the main and auxiliary motors are separately controlled in a programed manner to extend the speed range. The motor drive and associated control system are well adapted for use with rolling mills wherein the reel coils the strip leaving the last stand of the mill.

3,811,079

DC MOTOR CONTROL SYSTEM

Korefumi Tashiro, Hitachi; Yoshimitsu Onoda; Seiya Shima; Yoshio Sakai, all of Katsuta, and Toshiro Narita, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 25, 1973, Ser. No. 354,459
Int. Cl. H02p 5/16
U.S. Cl. 318—338 3 Claims



A system for controlling the speed of a DC motor by means of a field control in which a rectifier in the form of a thyristor is connected to the armature of the motor for supplying a current in only one direction and is controlled to constitute a constant current control means. An integrator having a saturation characterisitc is provided for integrating the difference between a reference speed and an actually detected speed of the motor. The output of the integrator is added to the reference speed and the result of addition is compared with the actually detected speed so as to apply a field current instruction signal to a field current control means provided with a current negative feedback means.

3,811,080

CONTROL CIRCUITS FOR D.C. ELECTRIC MOTORS

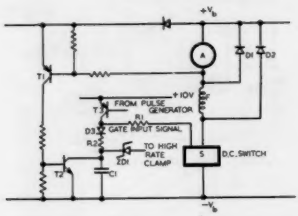
John Morton, Hazel Grove; Keith Drummond Stevens, Marple, and Graham Spencer Thexton, Marple Bridge, all of England, assignors to Cableform Limited, Cheshire, England

Filed Apr. 24, 1972, Ser. No. 246,547

Claims priority, application Great Britain, May 11, 1971, 14340/71

Int. Cl. H02p 3/12

U.S. Cl. 318—341 5 Claims



In control circuits for controlling D.C. electric motors, the motor is supplied in pulses so that the mean power supplied to the motor is varied by varying the frequency and/or mark-space ratio of the generator pulses. In such arrangements electrical braking is obtained by reversing the field winding connections but the field current has to be kept relatively low even for heavy braking. In the present invention means are provided for ascertaining if the armature current exceeds the field current during each pulse of current and for restricting the range of current which can be applied to the motor if the armature current exceeds the field current by a predetermined amount.

3,811,081

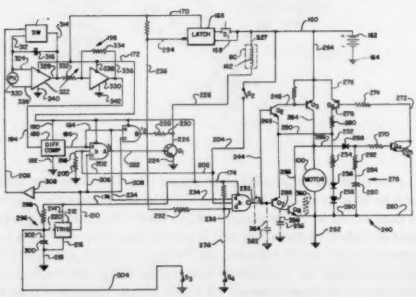
PHOTOGRAPHIC APPARATUS WITH PRECISION MOTOR CONTROL

Joseph J. Abbadessa, Waltham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 24, 1972, Ser. No. 299,667

Int. Cl. H02p 3/12

U.S. Cl. 318—375 28 Claims



Photographic apparatus of a type having instrumentalities powered by select energizations of a dynamoelectric motor. The control system of the apparatus serves to selectively energize and de-energize this motor and, subsequent to such de-energization, impose a dynamic braking function upon it. An arrangement for imposing a dead zone separation between the de-energization of the motor and dynamic braking is shown as well as an arrangement whereby an overtravel of motor actuated switching is provided through precise regulation of the number of revolutions of the output of the motor during dynamic braking.

3,811,082

BRAKING SYSTEMS FOR VEHICLES

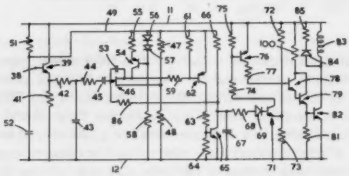
Christopher John Sutton, Belgrave, England, assignor to Joseph Lucas (Electrical) Limited, Birmingham, England

Filed Oct. 12, 1972, Ser. No. 297,069

Claims priority, application Great Britain, Oct. 22, 1971, 99308/71

Int. Cl. B60t 8/12

U.S. Cl. 318—383 3 Claims



A braking system for a vehicle has an arrangement for releasing the vehicle brakes automatically in order to prevent skidding. When the vehicle is travelling over a rough surface, such as a cobbled road, the rotational deceleration of the wheel can result in releasing of the brakes without wheel skid, and delay means is provided for preventing this possibility.

3,811,083

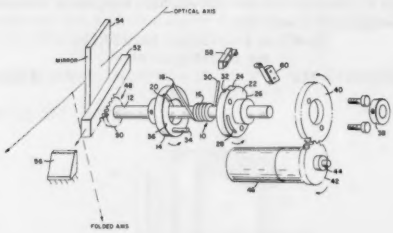
AUTOMATIC POSITIONING DEVICE EXHIBITING HIGH ACCURACY AND REPEATABILITY

Paul F. Minghella, Woburn, Mass., assignor to The United States of America as represented by the Secretary of the United States Army, Washington, D.C.

Filed Apr. 9, 1973, Ser. No. 349,367

Int. Cl. G05d 3/08

U.S. Cl. 318—466 4 Claims

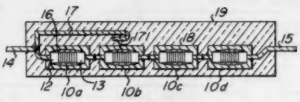


An automatic positioning mechanism for achieving extreme accuracy in dynamic repeatability based on the application of a constant torsion spring force. A member to be positioned is resiliently coupled to a drive means through a constant torsion spring. The drive means is disposed for displacing the member. The resilient coupling provides for cut-off of the drive means responsive to positioning of the member in the desired location.

3,811,084
HIGH VOLTAGE SEMICONDUCTOR RECTIFYING DEVICE

Kenzo Shima; Kensuke Suzuki; Tatuo Yosimura, and Takeshi Sasaki, all of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 6, 1971, Ser. No. 169,678
Claims priority, application Japan, Aug. 12, 1970, 45-70068
Int. Cl. H02m
U.S. Cl. 321—11 **5 Claims**

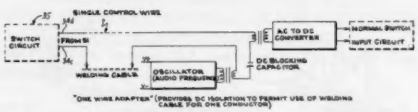


A high voltage semiconductor rectifying device comprising a rod-like stack of a plurality of silicon pellets and means to provide additional capacitance to silicon pellets nearer the a-c side electrode.

3,811,085
CONTROLLED POWER SOURCE WITH APPARATUS AND METHOD INCLUDING INDICIA OF CONTROL MEANS ACTUATION AT OPERATIONAL LOCATIONS SELECTIVELY SPACED FROM SOURCE, AS FOR, BUT NOT LIMITED TO, WELDING OPERATIONS

Jack C. Saulsman, 12105 Carlsbad, Houston, Tex.

Filed July 3, 1972, Ser. No. 268,784
Int. Cl. H02p *9/04*
U.S. Cl. 322—16 **12 Claims**



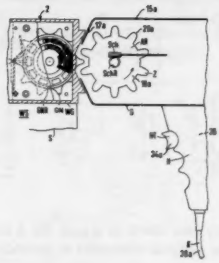
There is disclosed an operative, manipulated at a production station, and a control housing easily and readily mechanically connected to a conventional regulatable source of power, as a welding machine. The control housing has incorporated therein an actuator including circuitry, as with a fractional horse power motor being connected through a transmission to drive the means that regulates the power delivered from the source. In one form of the invention the circuitry includes a single conductor, and in another form, not more than two conductors. With conductor wire connected switch operator manipulated at his work station, he sets in actuation change of power delivered to his station, with change achieved being indicated to him in one form visually by performance, in another form by count of length of switch closure, in another form by count of successive switch closures, and in still another form by count of audible clicks or "beeps" indicative of steps effected in power regulation at source.

3,811,086
DEVICE FOR TESTING MULTIPLE ELECTRIC CIRCUIT SELECTOR SWITCHES

Ernst-Friedrich Lechner, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 24, 1972, Ser. No. 283,405
Claims priority, application Germany, Sept. 4, 1971, 2144414
Int. Cl. G01r *31/02*
U.S. Cl. 324—28 R **6 Claims**

Multiple electric circuit selector switches have manually operated rotary control wheels, rotation of the wheels selecting the various circuits. When used in large numbers, each control wheel must be rotated through all its possible positions to test each position as to circuit continuity. To save labor and time, a portable assembly is used including a drive wheel

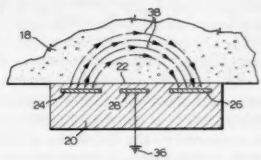


adapted for releasable peripheral engagement with each switch's control wheel, the drive wheel being motor powered and the assembly including means for determining the electric continuity of the switch elements as they are successively actuated by the driven control wheel.

3,811,087
MEASUREMENT OF MOISTURE CONTENT OF MATERIALS

Juergen F. Schmelzer, Toronto, Ontario, Canada, assignor to Rothmans of Paul Mall Canada Limited, Ontario, Canada

Filed May 21, 1973, Ser. No. 361,899
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 A **2 Claims**



An RF signal field is established through a partially conductive material, such as tobacco having a positive moisture content, and variations in the strength of the field, in response to change in the moisture content, are detected. The probe contacting the material is constructed with three conductive elements, the middle of which is grounded to provide measurements only of the strength of the RF field through the tobacco.

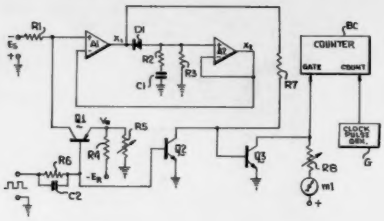
3,811,088
LOGARITHMIC CONVERTER

Norris C. Hekimian, Rockville, Md., assignor to Hekimian Laboratories, Inc., Rockville, Md.

Filed Oct. 19, 1972, Ser. No. 299,139
Int. Cl. G01r *15/10*; **G06g** *7/12*
U.S. Cl. 324—132 **12 Claims**

A logarighmic converter circuit includes an operational amplifier to which an input signal and a reference signal are alternately applied during respective half-cycles of a gating signal. During the input signal half-cycle, the amplifier output signal charges a capacitor through a diode and cuts off an output gate in a meter circuit, the capacitor voltage is degeneratively fed back to the amplifier. During the reference signal half cycle, the amplifier circuit signal reverses polarity, reverse-biasing the diode and closing the output circuit gate, until the capacitor discharges to the reference level. Current flows in the meter circuit only during the capacitor discharge

interval which is proportional to the logarithm of the input signal amplitude. The meter movement integrates the current duty cycle to provide a reading of the signal logarithm. The



output current may also serve as a gate for a counter fed by timing pulses or for a digital voltmeter to provide a digital output indication.

3,811,089

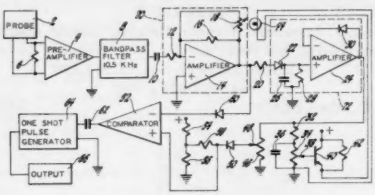
REMOTE ENGINE TACHOMETER

Anthony S. Strzelewicz, Roseville, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 14, 1972, Ser. No. 271,996

Int. Cl. G01p *3/48*

U.S. Cl. 324—170 **3 Claims**



A tachometer which does not require connection with the engine. A probe placed near the engine picks up electromagnetic radiation produced by the distributor points and coil in bursts timed with engine speed. A bandpass filter suppresses all frequencies except a narrow band which is amplified in a circuit with automatic gain control using optic elements in the feedback loop. A reference voltage whose level is a constant fraction less than the signal maximum is produced and compared with the signal in a comparator, the output of which triggers a one shot pulse generator to produce a train of pulses of constant width and amplitude at a frequency proportional to engine speed.

3,811,090

AUTOMATIC STOPPER SYSTEM FOR STOPPING A POWER SUPPLY IN THE ABSENCE OF INFORMATION SIGNALS

Kosaku Uchida, Neyagawa; Yoshito Dezaki, Kyoto, and Sadafumi Kitamura, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

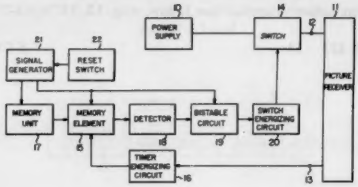
Filed May 31, 1972, Ser. No. 258,366

Claims priority, application Japan, June 2, 1971, 46-38850; June 9, 1971, 46-41208; Aug. 30, 1971, 46-67228

Int. Cl. H04b *1/06*

U.S. Cl. 325—390 **4 Claims**

An automatic stopper system comprises a power supply circuit for a device capable of transmitting or reproducing specific information signals contained in an input signal, a load circuit which effects the transmission or reproduction on receipt of power from the power supply circuit and a switch circuit connected between the power supply circuit and the load circuit, characterized in that the switch circuit is opened when an output from an information detector circuit which detects the presence of the information signals ceases to be



produced for a certain period of time, whereby power from the power supply circuit to the load circuit is stopped, thereby automatically stopping the useless reception of information to improve the safety of operation.

3,811,091

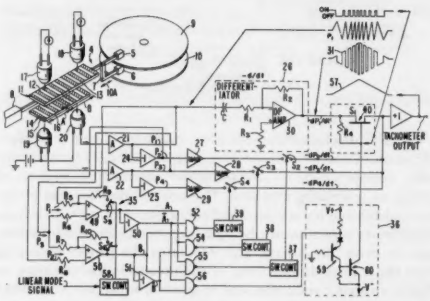
ELECTRONIC TACHOMETER

In W. Ha, San Jose, and James J. Touchton, Sunnyvale, both of Calif., assignors to Itel Corporation, San Francisco, Calif.

Filed Aug. 24, 1972, Ser. No. 283,528

Int. Cl. G08c *11/00*

U.S. Cl. 328—1 **6 Claims**



This invention relates to a tachometer for detecting the velocity of movement of a moveable member by use of signals indicating passage of that member past predetermined points along the path of movement.

3,811,092

VARIABLE-RATIO ELECTRONIC COUNTER-DIVIDER

Roger C. Charbonnier, Meudon, France, assignor to Adret Electronique, Trappes, France

Filed Oct. 17, 1972, Ser. No. 298,424

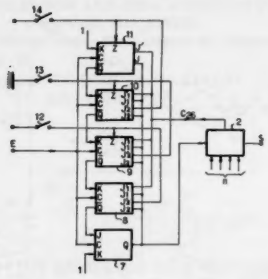
Claims priority, application France, Oct. 18, 1971, 71.37407

Int. Cl. H03k *23/06*

U.S. Cl. 328—39 **15 Claims**

In a digital frequency dividers with a programmable ratio, there is provided two serially connected division scales, the

first scale being set so that its division ratio shifts in whole units under the action of control signals applied thereto, the second scale including a fixed-capacity counter set to count permanently and to apply to the first scale a control signal



which is enabled for a predetermined number of counts of the second scale.

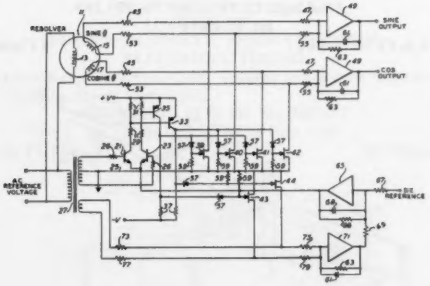
Such a divider is adapted for operation at frequencies higher than that of the prior art dividers, and will be used in frequency generators.

3,811,093

PHASE SENSITIVE DEMODULATOR WHICH AUTOMATICALLY COMPENSATES FOR VARIATIONS IN THE AC REFERENCE VOLTAGE

Louis P. DeLeo, Totowa, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed Sept. 19, 1972, Ser. No. 290,415
Int. Cl. H03d 1/04
U.S. Cl. 329—146 15 Claims



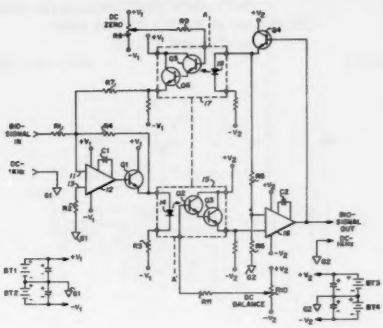
A phase sensitive demodulator which also provides automatic compensation for variations in the AC reference voltage is shown. The same reference voltage used in generating the signal to be demodulated is itself demodulated and summed with a DC reference value to develop a control signal which is used to cause more or less of the signal to be demodulated as the reference voltage rises and falls thereby resulting in an output which does not change with changes in reference voltage.

3,811,094

BIO-ISOLATED DC OPERATIONAL AMPLIFIER

Robert D. Lee, San Mateo, Calif., assignor to The United States of America as represented by the Administration of the National Aeronautics and Space Administration, Washington, D.C.

Filed June 30, 1972, Ser. No. 267,862
Int. Cl. H03f 17/00
U.S. Cl. 330—59 5 Claims



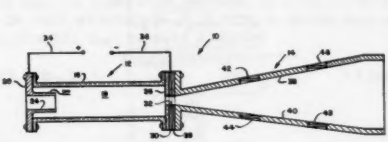
A bio-isolated DC operational amplifier is provided for use in making bio-electrical measurements of a patient while providing isolation of the patient from electrical shocks and the like, the circuit comprising a first operational amplifier coupled to the patient and having its output coupled in a forward loop through a first optic coupler to a second operational amplifier, the output of the second operational amplifier being coupled to suitable monitoring circuitry. The output of the second operational amplifier is coupled via a feedback circuit including a second optic coupler to the input of the first operational amplifier.

3,811,095

ELECTRIC-DISCHARGE EXCITED GASEOUS LASER

Joseph W. Rich, East Aurora; Charles E. Treanor, and John W. Daiber, both of Williamsville, all of N.Y., assignors to Calspan Corporation, Buffalo, N.Y.

Filed June 20, 1972, Ser. No. 264,682
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 5 Claims



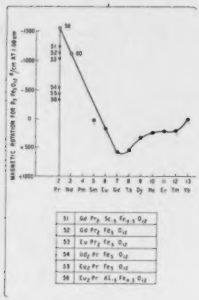
A diatomic molecular laser having an electrical gas discharge for increasing the vibrational energy of the gas and a supersonic expansion nozzle for reducing the translational temperature of the gas and optically aligned reflecting surfaces in the walls of the supersonic nozzle in communication with the electrical gas discharge.

3,811,096

MAGNETO-OPTIC MODULATORS

Joseph Francis Dillon, Jr.; Legrand Gerard Van Uitert, both of Morristown, and Stuart Harry Wemple, Chatham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 21, 1972, Ser. No. 290,786
Int. Cl. H01s 3/10
U.S. Cl. 332—7.51 10 Claims



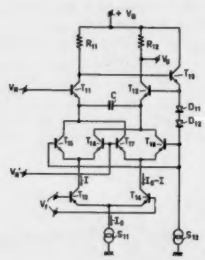
Magneto-optic modulators of the garnet structure useful over a transparency bandwidth of from about 1 to 5 micrometers show improved figure of merit where the dodecahedral site is at least partially occupied by praseodymium or neodymium, remainder gadolinium or europium.

3,811,097

A VARIABLE FREQUENCY ASTABLE MULTIVIBRATOR

Eise Carel Dijkmans, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 10, 1972, Ser. No. 305,534
Claims priority, application Netherlands, Nov. 17, 1971, 7115805
Int. Cl. H03k 7/00
U.S. Cl. 332—14 5 Claims



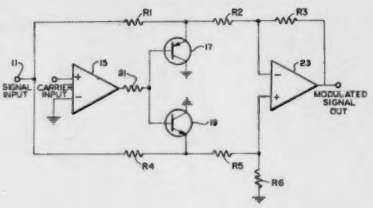
Emitter-coupled astable multivibrator in which the charging and discharging currents for the coupling capacitor are supplied by a current source circuit the two outputs of which are connected each to a terminal of the capacitor. This current source circuit comprises a differential stage and a four-quadrant multiplier.

3,811,098

TRANSFORMERLESS FULL WAVE RECTIFIER AND DIRECT COUPLED PRODUCT MODULATOR

Arthur B. Williams, Smithtown, N.Y., assignor to The Singer Company, Little Falls, N.J.

Filed Feb. 5, 1973, Ser. No. 329,622
Int. Cl. H03c 1/52
U.S. Cl. 332—44 7 Claims



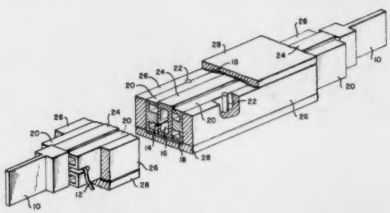
A circuit which in one configuration may be used as a rectifier and in another configuration as a direct coupled product modulator comprising a pair of transistors coupled to the input, a first integrated circuit amplifier controlling the transistors and a second integrated circuit amplifier obtaining its input inverting input from one transistor and its non-inverting input from the other and providing the final output is shown. In the rectifier configuration the signal to be rectified is applied to both the two transistors and the first amplifier with the amplifier output selectively grounding a respective one of the transistors on respective positive and negative cycles causing the second amplifier to output a uni-polar signal. In the modulator configuration the carrier is applied to the first amplifier and will modulate the signal input to the transistors through similar grounding action. Both configurations are able to handle small signals and provide variable gain a feature not present in prior art devices using transformers.

3,811,099

MEANS OF SECURING FERRIMAGNETIC CORE IN A MICROWAVE PHASER

Robert J. Mason, Medford, N.J., and Louis J. Lavedan, Jr., Springfield, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 13, 1973, Ser. No. 397,199
Int. Cl. H01p 1/32
U.S. Cl. 333—24.1 6 Claims



A mounting assembly for mounting a rectangular ferrimagnetic core longitudinally within a rectangular waveguide of a high-power-mode phase shifter comprising:

a. heat conducting elements on two opposite sides of the ferrimagnetic core extending longitudinally along the core;

b. dielectric transformers at each end of the core so as to partially overlap the ends of the heat-conducting ele-

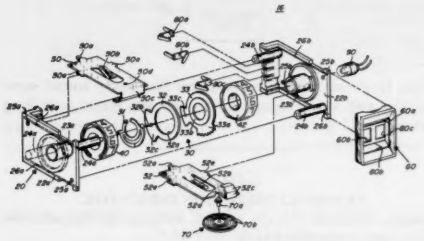
ments thereby restricting motion of the core with respect to the waveguide;

c. dielectric pins inserted into pin-holes positioned partially in the waveguide and partially in the heat-conducting elements to restrict longitudinal motion of the heat-conducting elements with respect to the waveguide.

3,811,100
CHANNEL SELECTOR AND INDICATOR FOR MULTI-CHANNEL RECEIVER

Hans Schmidt, Forest Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 20, 1972, Ser. No. 246,035
Int. Cl. H03j *3/06*
U.S. Cl. 334—15 **7 Claims**

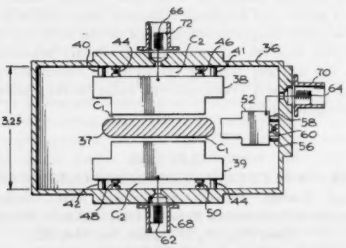


A control assembly for making channel selections in a multi-channel receiver apparatus, such as a television set, and which is comprised of a plurality of voltage selector and channel indicator units. The selector/indicator units are in modular form and include an adjustable resistance or potentiometer assembly for selective interposition between a source of reference potential and a voltage responsive, frequency determining element in the associated receiver's tuner apparatus. An included indicator wheel for providing a visual indication of the channel selected also determines the setting of the movable contactor arm of the potentiometer assembly relative to the resistance element, and thus serve as a coarse tuning adjustment. A thumb wheel with a spiral groove on its inner face which is provided in rotatable engagement with a projection in the potentiometer's resistance element for adjusting the latter through a predetermined but limited range of movement, thereby effecting a fine tuning facility.

3,811,101
ELECTROMAGNETIC RESONATOR WITH ELECTRONIC TUNING

Arthur Karp, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed Mar. 12, 1973, Ser. No. 340,172
Int. Cl. H03j *5/24;* **H01p** *7/04, 7/06*
U.S. Cl. 334—42 **20 Claims**

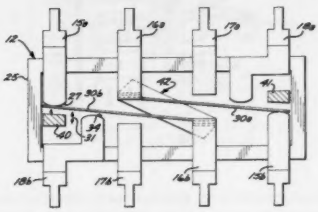


In a waveguide resonator, either coaxial, or non-coaxial, there are inserted spaced irises which establish capacitances between the conductors of the waveguide structure at the location of each iris. These capacitances tune the resonance of the waveguide cavity, which would generally be used in a bandpass filter. Switch means are provided for each iris, for discretely altering the value of the capacitance established, whereby the resonator or filter may be tuned to a large number of different center frequencies.

3,811,102
RELAY

Leonard P. Ash, Anaheim, Calif., assignor to Babcock Electronics Corporation, Costa Mesa, Calif.

Filed July 22, 1971, Ser. No. 165,253
Int. Cl. H01h *50/16*
U.S. Cl. 335—106 **7 Claims**



The present invention relates to an improved relay and more particularly relates to a miniaturized relay that is ideally adapted for use with present day printed circuit boards. The disclosed relay is a unit (hermetically sealed, if so desired) that snaps into place at a desired location of a printed circuit board; the terminals of the relay also serving as mechanical holding devices.

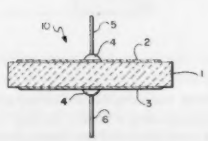
Electrically, the disclosed relay may operate in several different switch modes, with a variety of input/output terminals and has the inherent characteristic that if a dual pole switching mode is used, the poles tend to operate more simultaneously than in prior art relays.

Mechanically, the relay has a novel terminal construction that is efficient from both a manufacturing and an assembly point of view. Moreover, the disclosed relay is extremely economical to build.

3,811,103
VOLTAGE-NONLINEAR RESISTORS

Michio Matsuoka; Yoshikazu Kobayashi; Gen Itakura, and Takeshi Masuyama, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

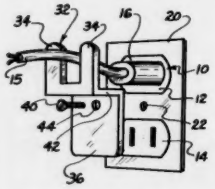
Filed Sept. 19, 1973, Ser. No. 398,779
Claims priority, application Japan, Sept. 20, 1972, 47-94739; Sept. 20, 1972, 47-94740; Sept. 20, 1972, 47-94741; Sept. 20, 1972, 47-94742; Sept. 20, 1972, 47-94743; Sept. 20, 1972, 47-94744; Sept. 20, 1972, 47-94745
Int. Cl. H01c *7/10*
U.S. Cl. 338—20 **6 Claims**



The invention relates to voltage-nonlinear resistors having non-ohmic resistance due to the bulk thereof, and more par-

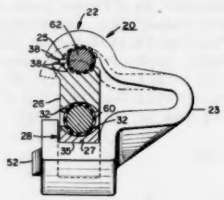
ticularly to varistors which are suitable for use as elements of lightning arresters, comprising zinc oxide, bismuth oxide, antimony oxide and nickel fluoride.

3,811,104
SAFETY DEVICE FOR ELECTRICAL OUTLETS
Thomas B. Caldwell, 50 W. Broad St., Columbus, Ohio
Filed Mar. 8, 1972, Ser. No. 232,710
Int. Cl. H01r 13/44, 13/54
U.S. Cl. 339—39 3 Claims



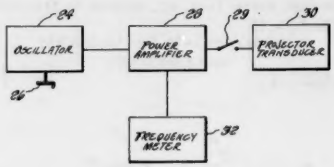
A safety device for electrical outlets which comprises an attachment for retaining electrical plugs in the sockets of a receptacle so as to preclude the inadvertent removal thereof as well as the insertion of foreign objects into the receptacles. Moreover, the present safety attachment is further adapted to provide the same safety feature in the event that only one electrical plug is mounted in a duplex receptacle in which instance the unused socket is covered to prevent the insertion of foreign objects.

3,811,105
ELECTRICAL CONNECTOR
Sidney Gerhard, 9 Pocono Rd., Norwalk, Conn.
Filed Dec. 29, 1972, Ser. No. 319,142
Int. Cl. H01r 11/20
U.S. Cl. 339—98 12 Claims



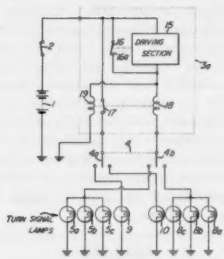
A "tap" or drop wire conductor clamp for electrical power conductors incorporating a holder having a conductor retaining surface and a ramped surface sliding advanced and locked within a resiliently deformable clamp which incorporates a "run" conductor mounting surface, a spring portion, a cooperating ramped camming surface and a latch, forming a secure branch connection joining a drop wire "tap" conductor to a continuous "run" conductor.

3,811,106
UNDERWATER LOW FREQUENCY SONIC COMMUNICATION
Warren A. Tyrrell, Mendham, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 31, 1963, Ser. No. 285,556
Int. Cl. H04b 11/00
U.S. Cl. 340—5 R 12 Claims



This invention relates to very low frequency sound wave signaling and communication through sea water over long distances.

3,811,107
FLASHING DIRECTION INDICATOR
Yasuhiko Sakurai, Kariya, Japan, assignor to Nippondenso Co., Ltd., Aichi-ken, Japan
Filed Nov. 9, 1971, Ser. No. 196,928
Claims priority, application Japan, Nov. 11, 1970, 45-111732; July 1, 1971, 46-57129
Int. Cl. B60q 1/38
U.S. Cl. 340—80 2 Claims

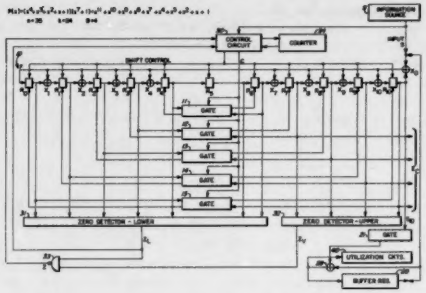


A flashing direction indicating apparatus wherein a plurality of turn signal lamps are intermittently coupled to power by a driving circuit through the closure of a normally open contact thereof. A current coil is coupled in series with the turn signal lamps, and a voltage coil is wound in opposite phase and coupled in parallel therewith. A normally closed contact is coupled to power and direction indicator lamps and is driven by the combined magnetomotive force of the coils, the coils are so wound that the normally closed contact remains closed when the current flowing through the corresponding coil decreases below a predetermined value thereby indicating a circuit malfunction.

3,811,108
REVERSE CYCLIC CODE ERROR CORRECTION
Thomas Harold Howell, Scottsdale, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed May 29, 1973, Ser. No. 364,782
Int. Cl. H04l 1/10
U.S. Cl. 340—146.1 AL 3 Claims

A method and apparatus is disclosed in which reversible cyclic encoding is used to enable reverse error identification.

Encoding and decoding is performed in essentially a conventional manner, except that the coding conforms to a reversible cyclic generator polynomial. In the preferred embodiment, a



linear feedback shift register is augmented with logic gates which enables the reversing of syndrome bits for subsequent error identification cycling in the event an error is detected.

3,811,109

VIDEO SIGNAL SAMPLING DEVICE FOR USE IN IMAGE ANALYSIS SYSTEMS

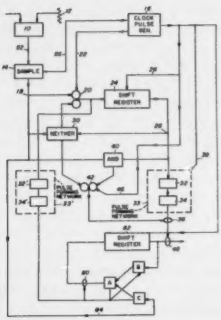
Gerald Marvin Gardner, Saffron Walden, England, assignor to Image Analysing Computers Limited, Melbourn, Roston, Hertfordshire, England

Filed Oct. 30, 1970, Ser. No. 85,383

Claims priority, application Great Britain, Oct. 31, 1969, 53404/69

Int. Cl. G06k *9/12*

U.S. Cl. 340—146.3 AC **9 Claims**



The invention provides a device for standardising randomly produced electrical signals on a time basis into pulses of duration equal to a whole-number multiple of known time intervals. This is achieved by sampling the original signal at the beginning of each interval of time and generating a two level signal whose instantaneous value is dependent on the result of the sampling carried out at the beginning of the interval. This device is of particular use in image analysis systems employing multiple signal paths since it simplifies the process of synchronising the various circuit elements in the different signal paths and prevents races occurring and largely eliminates problems from rise time variation and transients.

The invention also envisages the use of a particular form of signal storage device in image analysis systems which employ signal standardisation as proposed by the invention. Such signal storage devices are shift registers which derive their shifting signal from the same source as that which generates the sampling control signals. A number of different applications employing shift registers as signal storage devices are described and where applicable the signal sampling technique and standardising process as disclosed by the invention is described with reference to these arrangements.

3,811,110

ARRANGEMENT FOR NORMALIZING TWO-DIMENSIONAL PATTERN

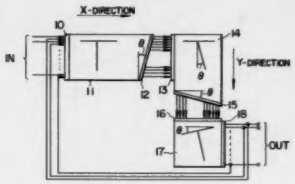
Fumiyuki Inose, and Yuzo Kita, both of Kokubunji, Japan

Filed July 24, 1972, Ser. No. 274,422

Claims priority, application Japan, July 23, 1971, 46-54614

Int. Cl. G06k *9/04*

U.S. Cl. 340—146.3 H **15 Claims**



An arrangement for normalizing a two-dimensional pattern, wherein a pattern input unit and a pattern detecting unit are respectively provided along the X-axis and Y-axis of a memory array which provides a shift function in the X- and Y-directions, and wherein said pattern detecting unit is arranged at certain angles with respect to the X-axis and Y-axis of said memory array, whereby the two-dimensional pattern stored in said memory array is successively shifted in the X-direction and Y-direction so as to impart rotation to said pattern.

3,811,111

METHOD OF EXPLORING A MEDIUM BY TRANSMITTING ENERGY EMITTED IN THE FORM OF SEPARATE IMPULSES AND ITS APPLICATION TO SEISMIC PROSPECTING

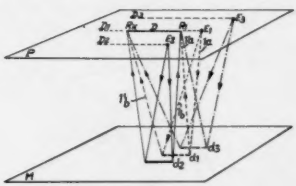
Maurice Barbier, Ousse, and Philippe Staron, Ris Orangis, both of France, assignors to Societe Anonyme dite: Societe Nationale Des Petroles

Filed June 12, 1972, Ser. No. 261,597

Claims priority, application France, June 14, 1971, 71.21467

Int. Cl. G01v *1/14, 1/22*

U.S. Cl. 340—15.5 CC **6 Claims**



This invention concerns a method of exploring a medium by transmitting energy emitted in the form of separate impulses, and its application to seismic prospecting.

It is characterized by the fact that the long signal is emitted by a number of sources off-set laterally from one another and from the receiver, the moments of emission by each source being such that when the sequence of moments of emission by all the sources are intercorrelated with the sequence of moments of emission by any one source, a function is obtained, for a duration equal to the longest time taken by waves to

travel both ways through the medium, the ratio of the amplitude of the maximum peak of this function to the amplitude of the secondary residues being approximately the same as the corresponding ratio for the autocorrelation function of the moments of emission of this same single source.

3,811,112

CONTROL COMMAND SECURITY IN BINARY REMOTE CONTROL

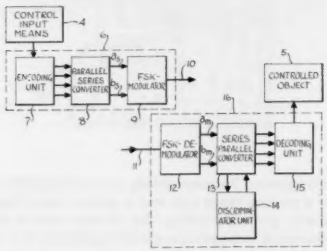
Johan Bertil Hoven, Jonkiping; Gunnar Alexius Wallgard, and Bo Herman Thorwald Svensson, both of Huskvarna, all of Sweden, assignors to Saab-Scania Aktiebolag, Linkaping, Sweden

Filed Oct. 10, 1972, Ser. No. 296,085

Claims priority, application Sweden, Oct. 12, 1971, 12890/71

Int. Cl. H04q 9/14

U.S. Cl. 340—164 R **9 Claims**



In a remote control system wherein control commands are sent as telegrams, each containing a fixed number of binary bits, transmission of each telegram is required to span a time interval divisible into equal periods, the number of such periods being equal to the number of bits in a telegram, and each bit pulse being required to persist for a predetermined portion of the duration of its period. Preferably the last pulse of each telegram has a longer duration than the others. The long last pulse is utilized for telegram framing as well as for authenticating received telegrams.

3,811,113

KEYBOARD OPERATED PATTERN GENERATING DEVICE

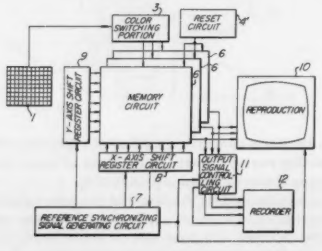
Teruo Saito; Toshihiko Yoshino, and Takeshige Ichida, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 46,041, June 15, 1970, abandoned. This application Dec. 19, 1972, Ser. No. 316,537

Claims priority, application Japan, June 21, 1969, 44-49169

Int. Cl. G06f 3/14, 3/06, 3/02

U.S. Cl. 340—172.5 **9 Claims**



A pattern generating device for displaying figures such as letters, pictures and the like on a display means such as a cathode ray tube (CRT) and the like by arranging picture elements in a mosaic. The device is adapted to decompose a figure to be displayed into picture elements of red, green and blue colors by an equal number of switches respectively corresponding to the picture elements so that the resulting component figures may be stored in respectively corresponding memory means, and to scan the stored figures with a scanning circuit to reproduce them on a color CRT for monitoring so that the figures may be recorded in a recording means after errors have been corrected. By employing this device, figures consisting of a large number of picture elements can be obtained in a short time, and a moving picture of a mosaic pattern can be easily made.

3,811,114

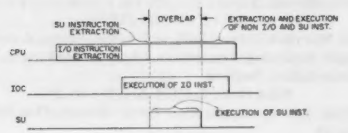
DATA PROCESSING SYSTEM HAVING AN IMPROVED OVERLAP INSTRUCTION FETCH AND INSTRUCTION EXECUTION FEATURE

Richard A. Lemay, Bolton, and David D. DeVoy, Dedham, both of Mass., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jan. 11, 1973, Ser. No. 322,806

Int. Cl. G06f 9/00

U.S. Cl. 340—172.5 **27 Claims**



A data processing system includes a main memory, a central processing unit, an input-output processing unit and a scientific processing unit. The central processing unit is operative to fetch each of the instructions of a program stored in main memory and then determines whether the execution of the instruction by either the input-output processing unit or the scientific processing unit can be overlapped with the central processing unit's fetching of a next instruction of the program. The scientific processing unit includes storage which enables the unit to execute certain types of instructions it receives from the central processing unit independently of the central processing unit. when the central processing unit determines that it has fetched one of these types of instructions, it begins immediately fetching a next instruction after it has delivered to the scientific processing unit information the scientific unit requires for executing the instruction. The system also includes apparatus which allows an operator access to the scientific unit storage for checking purposes.

3,811,115

ITEM LISTER USING A SHIFT REGISTER

Vincent A. Cordi, Vestal, and Chester S. Gurski, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

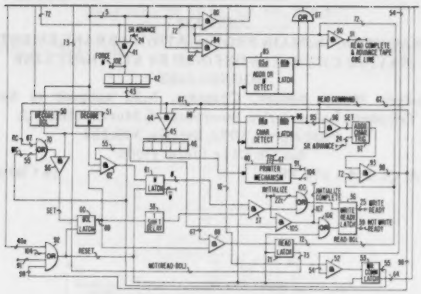
Filed Feb. 2, 1973, Ser. No. 329,265

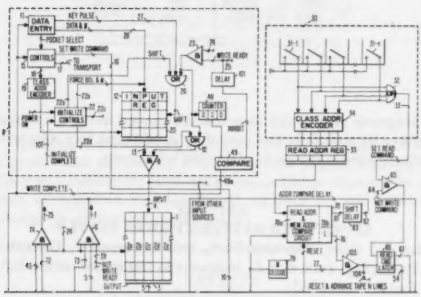
Int. Cl. G06f 15/40; G11c 19/00

U.S. Cl. 340—172.5 **8 Claims**

A shift register store and associated controls store randomly entered classes of data records and output the data records on request by specific class in the identical order in which the records of the class were entered into the register. Records are compacted in the register so that no blank character codes exist between records. Blank codes exist only at the end of all valid records on the register. The register and controls are particularly useful in proof/inscribe/sort apparatus of the type

used in bank proofing departments to permit the economic use of only one tape advance/print mechanism to produce specific class tapes for a multiplicity of sorter pockets, the





documents sorted into each pocket being of the same class. The register and controls are useful in other environments, e.g., to buffer data from a plurality of terminals in a teleprocessing system.

3,811,116

DEVICE FOR DETECTING MENTAL IMPAIRMENT

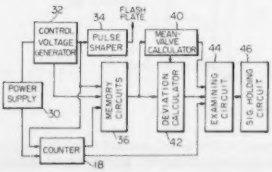
Yasuhisa Takeuchi, Yokosuka, and Hiromichi Nakamura, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokahama, Japan

Filed July 13, 1973, Ser. No. 378,875

Claims priority, application Japan, July 15, 1972, 47-71077

Int. Cl. B60r *25/00*; **B60k** *27/08*; **G05b** *13/02*

U.S. Cl. 340—172.5 **17 Claims**



Herein disclosed is an apparatus adapted to determine a degree of fatigue or drunkness of an examinee, which apparatus includes circuits to produce a control voltage varying with time, convert the voltage into pulses having a repetition rate proportional to the control voltage, energize a light-emissive means to produce light at a frequency proportional to the pulse repetition rate, repeat these steps a desired number of times for obtaining voltages representative of critical flicker frequencies determined by the examinee from the flashes of the light-emissive means, produce information in voltage representative of an arithmetic means and an average deviation of the critical flicker frequencies determined, compare the voltages representing these pieces of information with prescribed reference voltages to see if the mean value of the critical flicker frequencies is larger than an acceptable level and the average deviation thereof about the mean value is smaller than an acceptable level. The apparatus may be incorporated in a power driven vehicle so that a power plant thereof is made inoperative if the examinee has been "diagnosed" as incompetent for operating the vehicle.

3,811,117

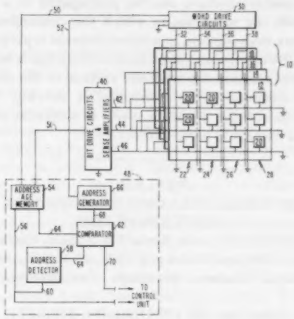
TIME ORDERED MEMORY SYSTEM AND OPERATION

Robert Douglas Anderson, Jr., and Howard Leo Kalter, both of Colchester, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1972, Ser. No. 298,918

Int. Cl. G11c *11/40*

U.S. Cl. 340—173 DR **17 Claims**



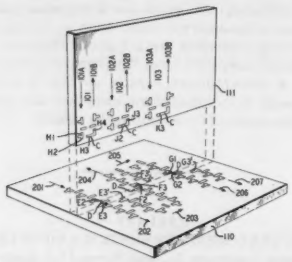
An array of memory cells in which stored information must be periodically restored in order to maintain its viability may have the restore operation carried out without interruption of the memory in most instances. The memory array is divided into a plurality of segments (e.g., on a word line basis), with the memory cells of each segment being restored as a group. Means for accessing the memory cells in the array and a pulse source for actuating the accessing means are provided. A time ordered list of segments in the array in the order of which they were last restored is maintained and updated as a particular segment is restored in, e.g., a plurality of counters or an associative memory. One of the segments of the memory is restored in each of a plurality of time intervals, each corresponding to the memory cycle time. Means for restoring the memory cells is actuated for a particular segment of the array each time an access to a portion of the memory included within that segment is made. The means for restoring is independently actuable during a time interval in which access to the memory is not being made to restore that segment of the array which had been previously restored least recently.

3,811,118

INTERMEDIUM MAGNETIC DOMAIN LOGIC CONTROL ARRANGEMENT

Amos Edward Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 22, 1972, Ser. No. 317,649
Int. Cl. G11c 11/14
U.S. Cl. 340—174 TF 17 Claims



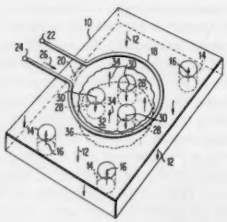
In magnetic domain technology, to achieve logic operations, a magnetically soft overlay is constructed to provide interaction points where a control domain and a controlled domain, each moving in the same substrate, come into close proximity with each other. Logic results from the magnetic interaction between the domains. An arrangement is disclosed where the control domain can be propagated in a substrate separate from the substrate in which the controlled domain moves. In one embodiment, a control domain is propagated to the edge of the controlling substrate, which edge is mounted in close physical relationship with the surface of the substrate in which the domain to be controlled is moving. Magnetic coupling between the domains, each in different substrates, provides the necessary logic control.

3,811,119

METHOD FOR GENERATING HOLLOW MAGNETIC BUBBLE DOMAINS

George S. Almasi, Katonah; Bernell E. Argyle, Putnam Valley, and John C. Deluca, Richmond Hills, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,817
Int. Cl. G11c 11/14
U.S. Cl. 340—174 TF 5 Claims



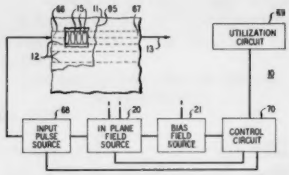
By suitably pulsing a coil overlying a magnetic film or platelet in which magnetic bubble domains exist, the domains within the coil reverse their magnetization vectors with respect to bubble domains in the magnetic material outside of the coil, thus enabling the controlled generation of hollow bubbles.

3,811,120

MAGNETIC DOMAIN PROPAGATION ARRANGEMENT HAVING CHANNELS DEFINED BY STRAIGHT LINE BOUNDARIES

Andrew Henry Bobeck, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 5, 1973, Ser. No. 348,282
Int. Cl. G11c 11/14, 19/00
U.S. Cl. 340—174 TF 14 Claims



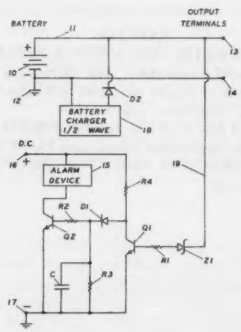
Magnetic single wall domains are moved along a channel defined by a straight line boundary in response to a magnetic field rotating in the plane of domain movement.

3,811,121

SUPERVISED BATTERY POWER SUPPLY

Alan M. Heim, Florham Park, and Raymond J. Gonzalez, Rockaway, both of N.J., assignors to Baker Industries, Inc., Cedar Knolls, N.J.

Filed June 23, 1972, Ser. No. 265,559
Int. Cl. G08b 21/00
U.S. Cl. 340—249 5 Claims

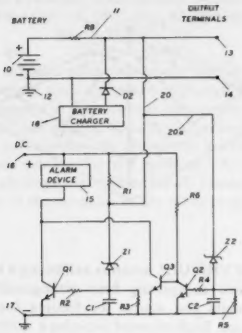


A circuit for indicating the presence or condition of a battery in which the battery is used to control the actuation of an alarm circuit by using current from the battery to actuate an electronic switch. The circuit is operative irrespective of whether or not a battery charger producing a pulsating charging current is connected to the battery.

3,811,122
SUPERVISED BATTERY POWER SUPPLY

Samuel Raber, Allendale, and Alan M. Heim, Florham Park, both of N.J., assignors to Baker Industries, Inc., Cedar Knolls, N.J.

Filed June 23, 1972, Ser. No. 265,561
Int. Cl. G08b *21/00*
U.S. Cl. 340—249 **7 Claims**

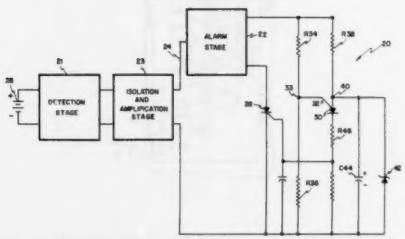


A circuit for indicating the presence or condition of a battery in which the battery while present or in good condition is used as a current by-pass to control an alarm circuit. The circuit is operative irrespective of whether or not a battery charger is connected to the battery.

3,811,123
LOW ENERGY INDICATOR

Jeffrey E. Hamm, 7432 Eastbourne Cir., Salt Lake City, Utah, and Robert S. Jenson, 2981 Middleton Way, Salt Lake City, Utah

Filed Feb. 12, 1973, Ser. No. 331,905
Int. Cl. G08b *19/00*
U.S. Cl. 340—249 **4 Claims**

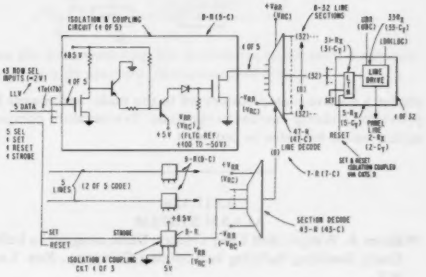


A low energy indicator circuit disclosed as part of a smoke detection system and giving a pulsating alarm when the strength of the DC energy source diminishes below a preset reference level. The circuit includes a programmable unijunction transistor with its anode maintained at a reference potential and its gate connected so as to monitor the voltage delivered by the energy source. When the voltage at the gate diminishes below the reference voltage, the programmable unijunction transistor becomes conductive and discharges to the gate of a switching device which in turn energizes an alarm circuit.

3,811,124
SOLID STATE GAS PANEL DISPLAY CIRCUITS WITH NON-INDUCTIVE SOLID STATE ISOLATION BETWEEN LOW LEVEL LOGIC AND HIGH LEVEL DRIVE SIGNAL FUNCTIONS

Bergert G. Kleen, and William R. Lamoureux, both of Kingston, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 12, 1972, Ser. No. 261,773
Int. Cl. H01j *11/00*
U.S. Cl. 340—324 M **14 Claims**



Isolation circuits for low level to high level coupling are co-packaged with selection logic circuits and multiple high voltage switching line driver circuits of a gas discharge display panel. The package is an all solid-state cost-reduced configuration subject to enhanced flexibility of operation. The high voltage switching line driver circuits operate in bistable mode and receive selective low voltage pre-conditioning during quiescent sustaining phases (dead times) of write/erase cycles of panel discharge manipulation. The selectively pre-conditioned switching circuits operate in parallel, during the active phase of the write/erase cycle, to control selective write/erase conditioning of multiple panel sites. The isolation circuits are enabled and disabled at discrete phases of a floating reference potential which tracks the sustaining voltage. Consequently, coupling between low level digital sources, selection decoding circuits and drive switching circuits occurs only during quiescent phase (dead time) of the sustaining voltage. Since the isolation circuits, selection circuits and drive switching circuits are capable of extremely fast pre-conditioning operation in comparison to the minimum duration of a write/erase cycle (nanoseconds compared to multi-microseconds), it is possible to selectively precondition latching elements associated with an entire line of panel sites (row or column), or any fraction thereof, and thereby manipulate any part or the whole of a line of panel discharge sites in each write/erase cycle.

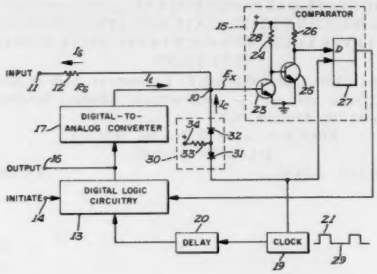
3,811,125
ANALOG-TO-DIGITAL CONVERTER

Robert W. Schumann, Madison, Wis., assignor to Nicolet Instruments, Inc., Madison, Wis.

Filed May 8, 1972, Ser. No. 251,343
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 AD **20 Claims**

An analog-to-digital converter of the successive approximations type, having a summing node for receiving the input signal and a series of trial currents, and having means for comparing the two. Further means are connected to the summing

node for maintaining it at a fixed voltage for an interval preceding a comparison of a trial current with the signal input current. In the preferred embodiment, the further means includes a passive clamp connected to the node, and means for providing a clamp current to the node. Temperature compensation means may also be provided.

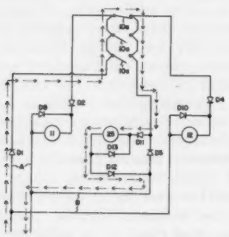


3,811,126

ALARM SYSTEM

William A. Winger, Salt Lake County, Utah, assignor to United States Smelting Refining and Mining Company, New York, N.Y.

Filed June 7, 1972, Ser. No. 260,490
Int. Cl. G08b *17/00, 29/00*
U.S. Cl. 340—409 **13 Claims**



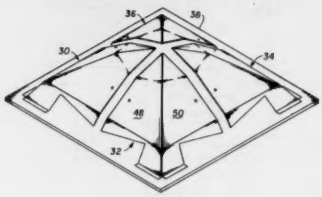
An alarm system includes two separate electrical loop circuits and means, such as diodes, controlling the supply of electrical power to the circuits so that normally one of the circuits is energized during one part of a given time period, e.g. the positive half cycle of an alternating current source common to the two circuits, and the other of the circuits is energized during the other part of such time period, e.g. the negative half cycle of such alternating current source. Alarm-condition sensors and associated normally-open switch means provide interconnection between the two circuits in case of an alarm condition so that current flows in one of the circuits from the other during the time such one circuit is unenergized. Such one circuit has a by-pass circuit portion containing alarm means and also has means for blocking normal current flow but not current flow from the other circuit, whereby the latter current flow activates the alarm means. Means may be provided in each circuit to indicate whether or not one of the other of the circuits becomes opened or shorted. A third circuit may be provided as a ground check.

3,811,127

ANTENNA FOR AIRBORNE SATELLITE COMMUNICATIONS

Leslie V. Griffee, Dallas, and Mardis V. Anderson, Richardson, both of Tex., assignors to Collins Radio Company, Dallas, Tex.

Filed Aug. 10, 1972, Ser. No. 279,590
Int. Cl. H01q *1/28*
U.S. Cl. 343—705 **6 Claims**



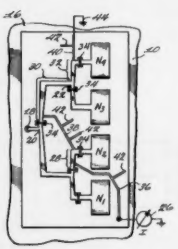
A broadband VHF/UHF antenna exhibiting a hemispherical radiation pattern comprising four orthogonally positioned radiating elements and means for feeding the elements in phase quadrature. Each element includes a vertical blade portion and a capacitive loading section attached to the upper edge of the blade portion. The capacitive loading portions define at least approximately a spherical section.

3,811,128

ELECTRICALLY SCANNED MICROSTRIP ANTENNA

Robert E. Munson, Boulder, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo.

Filed Apr. 17, 1973, Ser. No. 352,034
Int. Cl. H01q *1/00, 3/26*
U.S. Cl. 343—787 **12 Claims**



A microstrip antenna including a dielectric layer loaded with a ferrite material disposed between a ground plane and a generally planar or single layer arrangement of electrical conductors constituing both r.f. radiators and r.f. feedlines. Either or both of the r.f. radiators and feedlines include special d.c. circuits for passing d.c. electrical currents. When the d.c. electrical currents are passed through the r.f. radiators, the permeability of the ferrite loaded dielectric is altered thus scanning the resonant frequency of a radiator in accordance with the applied d.c. current or voltage. Furthermore, when the d.c. currents are passed through the r.f. feedline, or por-

tions thereof, the magnetic fields set up in the ferrite loaded dielectric causes controlled phase shifts to occur in r.f. energy passing there along thus effecting controlled phase shifts and hence beam scanning of an array of such radiators as a function of the d.c. current or voltage.

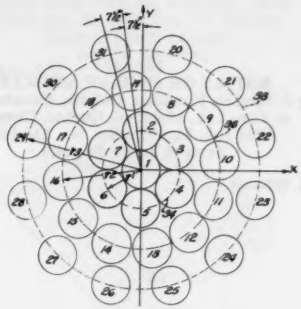
3,811,129

ANTENNA ARRAY FOR GRATING LOBE AND SIDELOBE SUPPRESSION

Dennis W. Holst, Littleton, Colo., assignor to Martin Marietta Corporation, Friendship International Airport, Md.

Filed Oct. 24, 1972, Ser. No. 299,660
Int. Cl. H01q 21/00
U.S. Cl. 343—844 **13 Claims**

A circular antenna array comprises module antennas arranged generally in rings in a plane. Although the module antennas are arranged in a systematic pattern on centers which are so far apart that grating lobes would ordinarily occur, the grating lobes are substantially eliminated because of the particular locations selected for the modules. The centers of the modules in each ring are unsymmetrically located with respect to the centers of the modules in the other rings. The level of sidelobes is reduced by providing space density tapering in only the outermost ring of module antennas. In rings other than the outermost ring, the module locations permit achievement of a high aperture illumination efficiency.



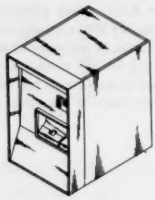
DESIGNS

MAY 14, 1974

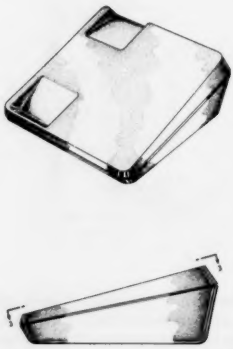
231,647
BOTTLE OR SIMILAR ARTICLE
Henry J. Morino, Hamilton, Ontario, Canada, assignor to Lavo Ltd., Montreal, Quebec, Canada
Filed Feb. 21, 1973, Ser. No. 334,440
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—40

231,648
CART FOR TRANSPORTING FURNITURE OR THE LIKE
Joe Malits, 18772 Avolinda Drive, Yorba Linda, Calif. 92686
Filed Jan. 19, 1973, Ser. No. 324,997
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—29

231,649
CASH ISSUING TERMINAL
Roger C. Williams, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 27, 1972, Ser. No. 248,356
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D52—4 R



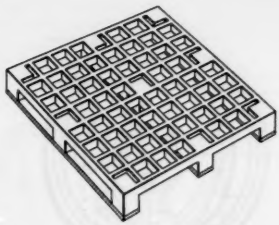
231,650
TELEPHONE STAND
Carol Hewitt Eubank, Greenwood, Ind., Donald Michael Genaro, Haworth, N.J., John Niel McGarvey, Drexell Hill, Pa., and Terry Brice Prince, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 29, 1973, Ser. No. 364,718
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



231,651
PHOTO PRINT CARRIER
Herbert F. Diegel, 1524 E. Culver St., Phoenix, Ariz. 85006
Filed Nov. 5, 1971, Ser. No. 196,247
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D61—1 P

231,652
SCISSORS
Mikko Tapani Jantti, Itainen Puistotie 4 A 1, 00140 Helsinki 14, Finland
Filed Jan. 23, 1973, Ser. No. 326,018
Claims priority, application Sweden Aug. 16, 1972
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—57

231,653
PALLET
George Irwin Schell, 20 Tourello Road, Mount Eliza, Victoria, Australia 3930
Filed Apr. 30, 1973, Ser. No. 355,536
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D14—3 N



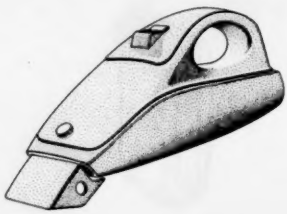
231,654
ROOF-MOUNTED AIR CONDITIONING UNIT
Walter E. Woods and Paul E. Hammann, Bettendorf, Iowa, assignors to American Air Filter Company, Inc., Louisville, Ky.
Filed Feb. 4, 1972, Ser. No. 223,817
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139

231,655
DRY SHAVER
Maarten Willem van Lelyveld, Elzebosstraat 15, Drachten, Netherlands
Filed Aug. 14, 1972, Ser. No. 280,138
Claims priority, application Switzerland Feb. 14, 1972
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A

231,656
VEHICLE WHEEL
Hiroshi Ishibashi, Tokyo, Japan, assignor to Bridgestone Cycle Industry Co., Ltd., Tokyo, Japan
Filed Oct. 10, 1972, Ser. No. 296,148
Claims priority, application Japan Apr. 10, 1972
Term of patent 7 years
Int. Cl. D12—*16*
U.S. Cl. D12—211

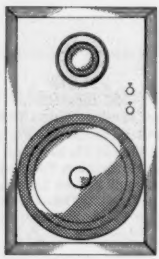
231,657
BICYCLE HUBCAP
Floyd C. Edmonds, Cleveland, Ohio, assignor to Bike Products Co., Cleveland, Ohio
Filed Oct. 3, 1972, Ser. No. 294,615
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—212

231,658
MEAT TENDERIZER
Daniel B. Stauft, 5494 Galbraith Road, Cincinnati, Ohio 45236
Filed Nov. 6, 1972, Ser. No. 303,860
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—153

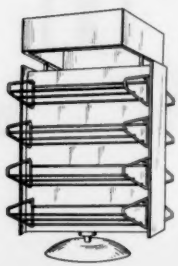


231,659
FISHING LURE
James M. Kemp, P.O. Box 5559, Phoenix, Ariz. 85010
Filed Mar. 30, 1973, Ser. No. 346,463
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27

231,660
SPEAKER CABINET
Haruo Ishikawa, Tokyo, Japan, assignor to Crysler Electric Co., Ltd., Tokyo, Japan
Filed July 5, 1973, Ser. No. 376,450
Claims priority, application Japan Jan. 23, 1973
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 G

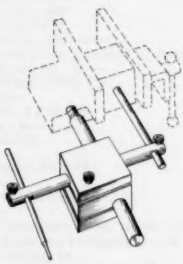


231,661
REVOLVABLE DISPLAY STAND
Joseph F. Bauman, Trenton, N.J., assignor to Emanuel Roth Company, Inc., Secaucus, N.J.
Filed May 4, 1972, Ser. No. 250,466
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—24

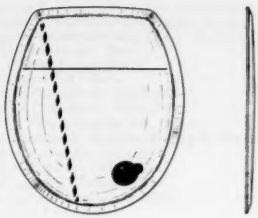


231,662
WATCH
Joseph Fusillo, Jr., 2393 Union Blvd., Islip, N.Y. 11751
Filed May 12, 1971, Ser. No. 142,841
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—1 B

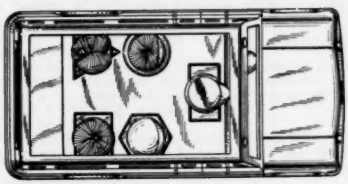
231,663
LOCATING STOP FOR WORK TO BE MACHINED OR THE LIKE
Hans A. Pingel, 307 Souix Trail, Lake In The Hills, Algonquin, Ill. 60102
Filed June 15, 1972, Ser. No. 263,328
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D54—13 A



231,664
TOILET SEAT COVER
Kerry A. Day, Parsippany, N.J., assignor to American Standard Inc., New York, N.Y.
Filed July 10, 1972, Ser. No. 270,100
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—71



231,665
TOY BUS
Norman Spiegel, New York, N.Y., assignor to Nasta Industries, Inc.
Filed Dec. 21, 1971, Ser. No. 210,633
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Bofors: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.

AB Gustavsbergs Fabriker: *See—*
Lundqvist, Bengt Olof, 3,810,543.

AB Motala Verkstad: *See—*
Carlsson, Bengt Johan, 3,810,730.

Abbadessa, Joseph J., to Polaroid Corporation. Photographic apparatus with precision motor control. 3,811,081, Cl. 318-375.000.

Aberg, Axel Karl Gunnar: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.

Abex Corporation: *See—*
Smith, Gary C., 3,810,419.

Abrahams, Louis; and Hutchins, Burleigh M., Jr., to Waters Associates, Inc. Check valve and system containing same. 3,810,716, Cl. 417-313.000.

ACF Industries, Incorporated: *See—*
Girard, Robert R., 3,810,552.

Acrometal Products, Inc.: *See—*
Dumas, Floyd A., 3,810,736.

Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, said Actor assor. to Smithkline Corporation. Anticestode hydrazinoquinolines. 3,810,984, Cl. 424-258.000.

Adams, William E.; Tufte, Vernon L.; and Tufte, Paul A. Personal medical record carrier. 3,810,566, Cl. 224-28.00b.

Adret-Electronique: *See—*
Charbonnier, Roger C., 3,811,092.

Aerojet-General Corporation: *See—*
King, William M., 3,810,974.

af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, to AB Bofors. Novel method and composition. 3,810,986, Cl. 424-267.000.

Agfa-Gevaert Aktiengesellschaft: *See—*
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, 3,810,594.
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.
Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, 3,810,568.

Agfa-Gevaert N.V.: *See—*
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,762.
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,763.

Ahlen, Karl Gustav, to S. R. M. Hydromekanik Aktiebolag. Sealing ring arrangement. 3,810,640, Cl. 277-235.00a.

Aikawa, Hiroshi: *See—*
Ito, Naganori; and Aikawa, Hiroshi, 3,810,611.

Aikoh Co., Ltd.: *See—*
Kobayashi, Hidetaka, 3,810,506.

Air Preheater Company, Inc.: *See—*
Hazzard, Noel D., 3,810,431.

Air Preheater Company, Inc., The: *See—*
Bakker, Lubertus; and Krumm, Eugene D., 3,810,555.

Air Products and Chemicals, Inc.: *See—*
Uffner, Melville Willard, 3,810,772.

Air Techniques, Inc.: *See—*
Steinberg, Samuel B., 3,810,697.

Aircraft Specialties, Inc.: *See—*
Kyser, Smith, 3,810,502.

Akandi-Form AB: *See—*
Svensson, Sven Hugo, 3,810,674.

Aktiebolaget Tudor: *See—*
Lindholm, Alfons Seth Mikael, 3,810,828.

Al-Hassan, Saieba: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba, 3,810,893.

Alan Pond Equipment Limited: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.

Alaska, St. Barth. Analyzer for simultaneously determining the RX, photochromic, and hardening characteristics of lenses. 3,810,698, Cl. 356-124.000.

Alco Electronic Products, Inc.: *See—*
Sevigny, Henry J., 3,811,024.

Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., to Kimberly-Clark Corporation. Fastening tab arrangement for disposable diapers. 3,810,472, Cl. 128-287.000.

Alexander Wiegand Armaturen- und Manometerfabrik: *See—*
Neugebauer, Gerhard, 3,810,390.

All American Industries, Inc.: *See—*
Doolittle, Donald B., 3,810,595.

Allen, Francis Edwin; and McGuire, James Daniel, to Leston and Burpee, Ltd. Bandmill strain machanism. 3,810,409, Cl. 83-810.000.

Allied Chemical Corporation: *See—*
Yeh, Chuen Y.; and Ulmer, Harry E., 3,810,946.

Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., to Midland-Ross Corporation. Air pressure discharge furnace having protective atmosphere inlet and outlet. 3,810,564, Cl. 222-146.00h.

Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., to International Business Machines Corporation. Method for generating hollow magnetic bubble domains. 3,811,119, Cl. 340-174.0tf.

Alpine Valley Resort, Inc.: *See—*
Peck, Truman C., 3,810,427.

Aluminium Suisse S.A.: *See—*
Queyroix, Christian A., 3,810,372.
Queyroix, Christian A., 3,810,373.

American Air Filter Company, Inc.: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
Scholl, Howard O., 3,810,350.

American Cyanamid Company: *See—*
Semp, Bernard Albert, 3,810,458.
Song, John, 3,810,929.

American Cyanamide Company: *See—*
Richter, Ferdinand Joseph, 3,810,841.

American Filtrona Corporation: *See—*
Berger, Richard M.; and Brooks, Elwin W., 3,810,477.

American Health, Inc.: *See—*
McCormick, James B., 3,810,461.

American Optical Corporation: *See—*
Becker, Gerald O., 3,810,459.

American Standard Inc.: *See—*
Daggy, Earl N., 3,810,330.
Parkison, Richard Grant, 3,810,602.

Aminkemi Aktiebolag, mesne: *See—*
Eriksson, Jan Christer; and Lagergren, Hans Ragnar, 3,810,781.

Ampoules, Inc.: *See—*
Hurschman, Alfred A., 3,810,469.

Ancra Corporation: *See—*
Prete, Ernest, Jr., 3,810,534.

Andco incorporated: *See—*
Berczynski, Frank A., 3,810,610.

Andersen, Roy Stolweather, to General Precision Industries Limited. Switch transfer mechanism having idler gear with positioning means permitting the transfer means to be clear of the idler gear after its travel through a predetermined switch position. 3,81,023, Cl. 200-153.00p.

Anderson, Albert E., to Pervel Industries, Inc. Apparatus for making plastic sheet material. 3,810,808, Cl. 156-389.000.

Anderson, Andrew W., to Scandia Packaging Machinery Company. Apparatus for tucking and folding. 3,810,314, Cl. 53-378.000.

Anderson, Arnold L. Polyacrylates containing flame retardant. 3,810,866, Cl. 260-45.90r.

Anderson, Arnold L. Polyacrylate plastic compositions containing phenolic ether flame retardants. 3,810,867, Cl. 260-45.90r.

Anderson, David P., to Woodall Industries Inc. Apparatus for forming plastic sheets. 3,810,731, Cl. 425-388.000.

Anderson, Mardis V.: *See—*
Griffee, Leslie V.; and Anderson, Mardis V., 3,811,127.

Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, to International Business Machines Corporation. Time ordered memory system and operation. 3,811,117, Cl. 340-173.0dr.

Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, to Fujitsu Limited. Gas discharge panel. 3,811,062, Cl. 313-188.000.

Andrews, Henry L.; and Hay, Donald A., to Copper Range Company. Production of elongated metallurgical mill product from loose metal powder. 3,810,757, Cl. 75-208.0cs.

Anner, Georg; and Wieland, Peter, to Ciba-Geigy Corporation. Process for the manufacture of steroid tropones. 3,810,916, Cl. 260-340.900.

Antypas, George A.; Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, to Varian Associates. Preparation of GaP-Si heterojunction by liquid phase epitaxy. 3,810,794, Cl. 148-172.000.

Aoki, Kouji: *See—*
Takasaki, Yoshitaka; and Aoki, Kouji, 3,811,016.

Applied Power Industries, Inc.: *See—*
Hicks, John R., 3,810,313.

Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., to United States of America, Atomic Energy Commission. Carbonaceous coating for carbon foam. 3,810,780, Cl. 117-46.0cb.

Arendt, Ronald H.; and Vanburen, Charles E., to General Electric Company. Method of preparing ferrites. 3,810,973, Cl. 423-594.000.

Argyle, Bernell E.: *See—*
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.

Arimoto, Kyozo: *See—*
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.

Arledter, Hanns F. Twin wire paper making machine with vibrators connected to suction and liquid delivery boxes located beneath the converging wires. 3,810,817, Cl. 162-301.000.

Arledter, Hanns F. Twin-wire paper making machine with suction boxes within the loop of one wire and blast boxes within the other. 3,810,818, Cl. 162-301.000.

Armour and Company: *See—*
Sato, Kunito; and Hegarty, Gerald R., 3,810,998.

Armstrong, Allan; and Fletcher, Geoffrey Charles, to Sutcliffe, Speakman & Co. Ltd. and Alan Pond Equipment Limited. Filter systems. 3,810,544, Cl. 210-167.000.

Artek Systems Corporation: *See—*
Perry, Russell C., 3,811,036.

Artz, Klaus: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Sato, Hideo; and Shimizu, Kunitoshi, 3,810,878.

Ash, Leonard P., to Babcock Electronics Corporation. Relay. 3,811,102, Cl. 335-106.000.

Ashland Oil, Inc.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.

Athansoulas, Evangelos G. Saw blade. 3,810,410, Cl. 83-852.000.

Athletics Devices, Inc.: *See—*
Nedwick, Zygmund, 3,810,618.

Atkins, Bobby L.: *See—*
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.

Atkinson, Ronald Edward, to Procter & Gamble Company, The. Hard-surface treating compositions. 3,810,846, Cl. 252-529.000.

Atlantic Richfield Company: *See—*
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3,810,871.
Dransfield, Clifford D., 3,810,524.

Austin, Elmer D. Mechanical fruit picker. 3,810,351, Cl. 56-328.00r.

Automation Industries, Inc.: *See—*
Turner, William R., 3,811,067.

Autotelic Industries, Ltd.: *See—*
Purchase, Francis Jack, 3,811,072.

Auyang, King: *See—*
Diamond, Julius; and Auyang, King, 3,810,979.

Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna. Plasmarons of steel-melting plasmaarc furnaces. 3,811,029, Cl. 219-121.00p.

Avicon, Inc.: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.

Baba, Kosaku; and Wazawa, Kiyoshi, to Nissan Motor Company, Limited. Velocity sensor. 3,811,056, Cl. 307-311.000.

Babcock Electronics Corporation: *See—*
Ash, Leonard P., 3,811,102.

Bach, Richard R., to Lockheed Electronics Company, Inc. Touch panel switch assembly. 3,811,025, Cl. 200-317.000.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Fischer, Adolf; Koenig, Karl-Heinz; and Reicheneder, Franz, 3,810,751.
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.

Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, to Pennwalt Corporation. 2-Substituted tetrahydropyran and 2-substituted tetrahydrofuran-2-peroxy compounds. 3,810,920, Cl. 260-345.800.

Bailey, John G., Jr.: *See—*
Smith, Gary E.; and Bailey, John G., Jr., 3,810,600.

Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., to Eastman Kodak Company. Dyes for photography. 3,810,761, Cl. 96-84.00r.

Bajusz, Sandor: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Baker, Alan Clark, to Celesco Industries, Inc. Gun launched training projectile. 3,810,426, Cl. 102-87.000.

Baker, Donal E.: *See—*
Shuey, Kenneth C.; and Baker, Donal E., 3,811,073.

Baker Industries, Inc.: *See—*
Heim, Alan M.; and Gonzalez, Raymond J., 3,811,121.
Raber, Samuel; and Heim, Alan M., 3,811,122.

Bakker, Lubertus; and Krumm, Eugene D., to Air Preheater Company, Inc., The. Railroad tie reducer. 3,810,555, Cl. 241-278.00r.

Baldwin, D. H., Company: *See—*
Harris, Michael R., 3,811,003.

Ball Brothers Research Corporation: *See—*
Munson, Robert E., 3,811,128.

Balling, T. Thomas; and Mahlmann, James P., to General Foods Corporation. Modification of aqueous coffee aroma. 3,810,999, Cl. 426-362.000.

Ballman, Albert Anthony; and Tien, Ping King. Optical waveguiding devices using monocrystalline materials of the sillenite family of dismuth oxides. 3,810,688, Cl. 350-96.0wg.

Bang, Erik Borje: *See—*
Wiklund, Per Martin; and Bang, Erik Borje, 3,810,309.

Banks, Bobby R.; and Graham, Arthur E., to International Business Machines Corporation. Method for providing a heater roll fuser with improved release material. 3,810,776, Cl. 117-21.000.

Banner Welder, Inc.: *See—*
Werner, James O., 3,810,497.

Banucci, Eugene G., to General Electric Company. Bis(3-chloro-4-hydroxyphenyl) malononitrile. 3,810,933, Cl. 260-465.00f.

Banyu Pharmaceutical Co., Ltd.: *See—*
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.

Baran, John S.; and Liang, Chi-Dean, to Searle, G. D., & Co. 3-Oxygenated-30-methylolean-12-en-30-ones and 11-oxo derivatives thereof. 3,810,927, Cl. 260-410.000.

Barbee, Wilford O., to Iowa Beef Processors, Inc. Hide removal method and apparatus. 3,810,277, Cl. 17-21.000.

Barber, Alfred W. Remote telephone calling system. 3,811,012, Cl. 179-2.00a.

Barbier, Maurice; and Staron, Philippe, to Societe Anonyme dite: Societe Nationale des Petroles. Method of exploring a medium by transmitting energy emitted in the form of separate impulses and its application to seismic prospecting. 3,811,111, Cl. 340-15.cc.

Barbour, William P., to Control Data Corporation. Bi-directional imprinter. 3,810,424, Cl. 101-269.000.

Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, to Ranks Hovis McDougall, Limited. Enzymes attached to cellulose carbonate. 3,810,821, Cl. 195-63.000.

Bashaw, Robert N.: *See—*
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.

Bassoff, Arthur B.: *See—*
Kusz, Raymond S.; and Bassoff, Arthur B., 3,810,413.

Battista, Orlando A.: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.

Batzer, Hans: *See—*
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.

Bau-Stahlgewebe GmbH: *See—*
Elle, Erich, 3,810,376.

Baumgartner, Kurt, to Graphicart Internationale Ausrustungsgesellschaft fur graphische kunst AG. Fluid spreading and wiping device for etching machines for rotogravure cylinders. 3,810,272, Cl. 15-256.520.

Bayer Aktiengesellschaft: *See—*
Hoffmann, Hellmut; and Hammann, Ingeborg, 3,810,911.
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.
Kranz, Eckart; and Bock, Marianne, 3,810,894.
Meussdoerffer, Johann Nikolaus; and Niederprum, Hans, 3,810,948.
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.
Pohlmann, Heinrich; and Schmidt, Karl-Julius, 3,810,980.
Tacke, Peter; and Hermann, Karl-Heinz, 3,810,861.

Bean, Kenneth E.: *See—*
Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., 3,810,796.

Beavers, Allan E., to Pelsue, T. A., Company. Collapsible tent and frame therefor. 3,810,482, Cl. 135-4.00r.

Becker, Gerald O., to American Optical Corporation. Transcutaneous blood vessel probe with relocation marker. 3,810,459, Cl. 128-2.05z.

Becker, Helmut: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.

Becton, Dickinson and Company: *See—*
Rutner, Herman; Rapun, Raul; and Lewin, Nathan, 3,810,886.

Bedder, Llewllyn James: *See—*
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.

Bell, Marvin D.: *See—*
Nunnink, Charles P., Jr.; and Bell, Marvin D., 3,810,664.

Bell Telephone Laboratories, Incorporated: *See—*
Beth, Ronald Valentine; and Catterall, John Mason, 3,811,015.
Bobeck, Andrew Henry, 3,811,120.
Breitung, Glen A.; and Hershey, Harold Jacob, 3,810,575.
Buhite, Paul Harold; and Pinnow, Douglas Arthur, 3,810,802.
Courtney-Pratt, Jeofry Stuart, 3,810,699.
Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, 3,811,096.
Habib, Nissin, 3,811,053.
Joel, Amos Edward, Jr., 3,811,118.
Michelet, Robert Wilson; and Silverman, Edward Jerome, 3,811,050.

Belmont Casket Manufacturing Company: *See—*
Ferber, Arthur C., 3,810,281.

Bender, Leroy E., 20% to Lee, Raymond, Organization, Inc., The. Mail box mounting device. 3,810,598, Cl. 248-221.000.

Bendler, Hellnut: *See*—
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Benfer, David Van Dike. Bundle tie tool. 3,810,499, Cl. 140-123.600.

Benjamin, Milton L., to Erickson Tool Company. Collet chuck for router head and the like. 3,810,641, Cl. 279-51.000.

Benton, Richard H.: *See*—
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.

Benton, Samuel T.; and Schmitt, Charles R., to United States of America, Atomic Energy Commission. Method of preparing a syntactic carbon foam. 3,810,963, Cl. 264-29.000.

Benz, August. Device for cleaning vertical or sloping surfaces. 3,810,702, Cl. 401-139.000.

Berczynski, Frank A., to Andco incorporated. Bosh construction for metallurgical furnaces. 3,810,610, Cl. 266-43.000.

Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, to Societe en nom Collectif Science Union et Cie, and Societe Francaise de Recherche Medical. Benzenesulfonyl semicarbazides. 3,810,914, Cl. 260-326.100.

Berends, Howard P., to Holland Hitch Company. Vehicular bag hoist. 3,810,663, Cl. 280-425.000.

Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, to Knapsack Aktiengesellschaft. Apparatus for the production of phosphoric acid. 3,810,740, Cl. 23-277.00r.

Bergandi Manufacturing Company, Inc.: *See*—
Rohrbacher, Herbert E., 3,810,496.

Berger, Richard M.; and Brooks, Elwin W., to American Filtrona Corporation. Tobacco smoke filter. 3,810,477, Cl. 131-261.00r.

Bernstein, Jack: *See*—
Hochn, Hans; and Bernstein, Jack, 3,810,905.

Berry, Thomas: *See*—
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.

Berthold, Walter: *See*—
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.

Bertus, Brent J., to Phillips Petroleum Company. Oxidative dehydrogenation processes. 3,810,954, Cl. 260-680.00e.

Beth, Ronald Valentine; and Catterall, John Mason, to Bell Telephone Laboratories, Incorporated. Switching systems with special customer service. 3,811,015, Cl. 179-18.0bg.

Beuther, Harold; and Henke, Alfred M., to Gulf Research & Development. Asphalt compositions. 3,810,771, Cl. 106-278.000.

Beyl, Jean Joseph Alfred. Ski binding. 3,810,644, Cl. 280-11.35t.

Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio. Titanium or tantalum base electrodes with applied titanium or tantalum oxide face activated with noble metals or noble metal oxides. 3,810,770, Cl. 106-286.000.

Bielenberg, Waldemar: *See*—
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Billing, Peter George, to Froment, N. J., & Co. Electrical frequency indicating means. 3,811,052, Cl. 307-233.000.

Bio-Medical Sciences Inc.: *See*—
Pickett, Charles G.; and Molnar, James V., 3,810,779.

Birchall, James Derek: *See*—
Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, 3,810,769.

Biscardi, Salvatore F.; and Zeitlin, Benjamin R., to General Foods Corporation. Central nervous system stimulation 3,810,995, Cl. 424-331.000.

Bjorhaag, Georg. Plant for manufacturing reinforced concrete elements, preferable in the shape of a case. 3,810,726, Cl. 425-111.000.

Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, to Imperial Chemical Industries Limited. Compositions of complex phosphates of aluminium. 3,810,769, Cl. 106-135.000.

Blazer & Droll KG: *See*—
Muskulus, Willi, 3,810,587.

Blohm, Hans-Jachen, to Daimler-Benz Aktiengesellschaft. Carburator for internal combustion engines. 3,810,607, Cl. 261-78.00r.

Blough, Ronald S., to Fairfield Engineering and Manufacturing Company. Floating apparatus for liquid composting. 3,810,548, Cl. 210-242.000.

Blum, Albert. Submersible pump. 3,810,718, Cl. 417-360.000.

Bobeck, Andrew Henry, to Bell Telephone Laboratories, Incorporated. Magnetic domain propagation arrangement having channels definyd by straight line boundaries. 3,811,120, Cl. 340-174.0tf.

Bocckino, Harry G.: *See*—
Gloster, Arthur; and Bocckino, Harry G., 3,810,542.

Bock, Hermann: *See*—
Kranz, Eckart; and Bock, Marianne, 3,810,894.

Bock, Marianne: *See*—
Kranz, Eckart; and Bock, Marianne, 3,810,894.

Bodmin, Syd Ernest. Pulsator units of milking machines. 3,810,443, Cl. 119-14.370.

Boebel, Carl P.; and Stevenson, Gary E., to United States of America, Air Force, mesne. Coatings having high solar absorptance to infrared emittance ratios. 3,810,777, Cl. 117-33.300.

Boehringer Mannheim GmbH: *See*—
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,896.

Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.

Bohner, Beat; and Rufenacht, Switzerland, to Ciba-Geigy Corporation. Cyclobutene phosphoric acid esters. 3,810,919, Cl. 260-345.200.

Boldebuck, Edith M., to General Electric Company. Method for recovering polyamide acid values from deteriorated dispersions of polyamide acid. 3,810,858, Cl. 260-29.20n.

Bom, Cornelis Johannes Gerardus: *See*—
van der Lely, Ary; and Bom, Cornelis Johannes Gerardus, 3,810,434.

Bomball, William A., to Staley, A. E., Manufacturing Company. Remoistenable, prepasted wall covering and method of making. 3,810,783, Cl. 117-122.00s.

Boncher, John L., Jr.: *See*—
London, Eugene J.; and Boncher, John L., Jr., 3,810,554.

Bonnet, Walter, Inc.: *See*—
Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., 3,810,267.

Bonvin, Jacques, to Societe Internationale De Macanique Industrielle S.A. Shaft packing. 3,810,637, Cl. 277-96.000.

Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, to Atlantic Richfield Company. Polyurethane coating composition suitable for use in low temperature environments. 3,810,871, Cl. 260-47.0cb.

Bork, Peter, to Siemens Aktiengesellschaft. Glass molding apparatus. 3,810,747, Cl. 65-158.000.

Bortnichuk, Nikolai Iosifovich: *See*—
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Bosch, Paul, to Bosch, Robert, GmbH. Center ring arrangement for a radial piston machine. 3,810,418, Cl. 91-484.000.

Bosch, Robert, Elektronik GmbH: *See*—
Bottcher, Lutz; and Heyne, Karl-August, 3,810,457.

Bosch, Robert, GmbH: *See*—
Bosch, Paul, 3,810,418.

Bosse, Frank, to Windmoller & Holscher. Apparatus for making carrier bags having plastics handles attached to the mouths thereof. 3,810,811, Cl. 156-516.000.

Bottcher, Lutz; and Heyne, Karl-August, to Bosch, Robert, Elektronik GmbH. Diagnostic apparatus for automatically generating an intensity-time diagram showing points of minimum involuntary muscle movement. 3,810,457, Cl. 128-2.10r.

Braithwaite, David G.; Johnson, Carl E.; and Scale, Virgil L., to Nalco Chemical Company. Catalyst and process of preparing. 3,810,845, Cl. 252-455.00z.

Braly, Joseph M., to Con-Sole Golf Corporation. Golf club head of the iron type having a concave sole. 3,810,631, Cl. 273-167.00a.

Brandell, John R., to Brandell Products Corporation. Golf putting practice devices. 3,810,632, Cl. 273-179.00a.

Brandell Products Corporation: *See*—
Brandell, John R., 3,810,632.

Brandenburgsky, Mikhail Galileevich: *See*—
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.

Breil, Gunther: *See*—
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Breitung, Glen A.; and Hershey, Harold Jacob, to Bell Telephone Laboratories, Incorporated. Coin collecting apparatus. 3,810,575, Cl. 232-57.500.

Brenneman, Homer K.: *See*—
Cable, Russell D.; and Brenneman, Homer K., 3,810,487.

British Industrial Plastics Limited: *See*—
Doi, Kazuo; and Kitsuda, Yoshihiro, 3,810,854.

British Insulated Callender's Cables Limited: *See*—
Newberry, John; and Ettie, Alan George Albert Edward, 3,810,380.

British Leyland Motor Corporation, Limited: *See*—
Weaving, John Harold; and Haynes, Cecil David, 3,810,361.

Brochetti, Raymond E., to Hunter, James, Machine Company, Inc. Needle punching machine for endless webs. 3,810,284, Cl. 28-4.00r.

Broers, Godefridus Henricus; and van Esdonk, Johannes, to U.S. Philips Corporation. Method of manufacturing a wave-guide. 3,810,302, Cl. 29-600.000.

Brooke, Chester B., to Shell Oil Company. Start-up procedure for catalytic steam reforming of hydrocarbons. 3,810,975, Cl. 423-652.000.

Brooks, Elwin W.: *See*—
Berger, Richard M.; and Brooks, Elwin W., 3,810,477.

Brown, John F., Jr.: *See*—
Slusarczuk, George M. J.; and Brown, John F., Jr., 3,810,843.

Brown, Melancthon S.; deceased (by Kohn, Gustave K.; administrator), to Chevron Research Company. N-arylthio S-hydrocarbyl thiocarbamates. 3,810,928, Cl. 260-455.00a.

Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., to United Aircraft Corporation. Nonequilibrium magnetohydrodynamic device. 3,811,057, Cl. 310-11.000.

Browning Arms Company: *See*—
Hillberg, Robert L.; and Hartog, Thomas J., 3,810,326.

Browning, William C.; and Chesser, Billy G., to Milchem Incorporated. Composition and process for cross-linking macromolecular polysaccharide solutions. 3,810,882, Cl. 260-209.00r.

Bruce, Peter. Chain cable. 3,810,358, Cl. 59-78.000.

Brugger, Max: *See*—
Rittel, Werner; and Brugger, Max, 3,810,881.
Brun, Marcel; and Riegert, Alfred, to Pechiney Ugine Kuhlmann. Apparatus for connecting a mobile tank with loading platform. 3,810,500, Cl. 141-231.000.
Brunaud, Marcel Daniel Pierre: *See*—
Labourcur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.
Brunone, Peter P., to Veeder Industries, Inc. Fluid delivery control system. 3,811,035, Cl. 235-92.0fl.
Brust, John J.: *See*—
Geist, Kenneth R.; and Walsh, James E., 3,810,737.
Bryan, James W. Slide closure cosmetic stick dispenser casing. 3,810,700, Cl. 401-59.000.
Bryan, Robert C., Jr.; and Price, Joseph F., to Ludlow Corporation. Mulch sheet. 3,810,328, Cl. 47-9.000.
Buchholz, Richard Frank; and Reintjes, Marten, to International Telephone and Telegraph Corporation. Plicatamides. 3,810,941, Cl. 260-559.00r.
Buchschacher, Paul: *See*—
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, to Roussel-UCLAF. Novel steroids and processes. 3,810,885, Cl. 260-239.55c.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, to Roussel-UCLAF. Novel 11β-alkoxy steroids. 3,810,887, Cl. 260-239.55c.
Buhite, Paul Harold; and Pinnow, Douglas Arthur, to Bell Telephone Laboratories, Incorporated. Optical fiber splicing device and technique. 3,810,802, Cl. 156-158.000.
Bullis, Robert H.: *See*—
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Burg, Stanley P.; and Hentschel, William J., to Dormavac Corporation, The, mesne. Low pressure storage of metabolically active material with open cycle refrigeration. 3,810,508, Cl. 165-20.000.
Burnell, Norman; and Potruch, Robert A., to Lumidor Products Corporation. Breather cap with valve depressor. 3,811,006, Cl. 174-135.000.
Burroughs Corporation: *See*—
Ogle, James A., 3,811,071.
Burton Delingpole & Company Limited: *See*—
Lowe, Jack Graham, 3,810,704.
Bust, Gordon A.; and Polzin, Dean A. Stacker crane attachment. 3,810,551, Cl. 212-135.000.
Butt, Sheldon H.: *See*—
Ford, James A.; and Butt, Sheldon H., 3,810,754.
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, to American Air Filter Company, Inc. Scrubber arrangement. 3,810,348, Cl. 55-91.000.
Bykov, Yakov Maximovich: *See*—
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Bylund, Don M.; and Kimble, Victor W., to Deering Milliken Research Corporation. Apparatus to continuously provide fabric with a heat sealed salvage. 3,810,810, Cl. 156-499.000.
Byrne, William J.: *See*—
McCahon, John O.; and Byrne, William J., 3,810,612.
Cable, Russell D.; and Brenneman, Homer K., to Porta Service, Inc. Mobile lubrication apparatus. 3,810,487, Cl. 137-351.000.
Cableform Limited: *See*—
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, 3,811,080.
Caldwell, Thomas B. Safety device for electrical outlets. 3,811,104, Cl. 339-39.000.
Calspan Corporation, mesne: *See*—
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., 3,811,095.
Campbel, Virgil B.: *See*—
Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., 3,810,780.
Campbell, David D., to General Motors Corporation. Shoulder belt positioning arrangement. 3,810,657, Cl. 280-150.0sb.
Canning, William H.: *See*—
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.
Cantz, Rolf J., to Kennametal Inc. Method of manufacturing tire stud. 3,810,298, Cl. 29-525.000.
Cardwell, Paul H.: *See*—
Kane, William S.; and Cardwell, Paul H., 3,810,827.
Carlson, Arthur W., to Velsicol Chemical Corporation. Process for preparing a methano-poly-cyclic hydroquinone. 3,810,945, Cl. 260-619.00f.
Carlsson, Bengt Johan, to AB Motala Verkstad. System for feeding particle slabs resting on a flexible support surface to and from multilayer presses. 3,810,730, Cl. 425-338.000.
Carreira, Leonard M.: *See*—
Tulagin, Vsevolod; and Carreira, Leonard M., 3,810,758.
Carrier Corporation: *See*—
Miller, Charlie D., 3,810,402.
Carson, William M., to Constructors Supply Company. . 3,810,312, Cl. 33-227.000.
Cassa, Jean: *See*—
Lecuru, Jacques; and Cassa, Jean, 3,810,329.
Cassidy, John Edward: *See*—
Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, 3,810,769.
Castleman, Curtis H.: *See*—
McGrew, David P., 3,810,265.
Catterall, John Mason: *See*—
Beth, Kenneth Valentine; and Catterall, John Mason, 3,811,015.
Celesco Industries, Inc.: *See*—
Baker, Alan Clark, 3,810,426.
Cellu Products Company: *See*—
Doll, Martin, 3,810,800.
Cement & Concrete Association, The: *See*—
Weaver, John; and Maynard, David Payne, 3,810,709.
Center guided tile drill: *See*—
Voscovich, Steven J., 3,810,514.
Centre de Recherche Industrielle du Quebec: *See*—
Cook, Robert C., 3,810,301.
Century Wheels, Inc.: *See*—
Morgan, Paul A., 3,810,310.
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., to Texaco Inc. Overbased sulfurized calcium alkylphenolated manufacture. 3,810,837, Cl. 252-42.00f.
Chancey, Harold R.: *See*—
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers from dimethyl dipyridyl compounds. 3,810,848, Cl. 260-2.00r.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers prepared from dialdehyde dipyridyl compounds. 3,810,872, Cl. 260-64.000.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers prepared from a dialdehyde dipyridyl compound and polyvinyl alcohol. 3,810,873, Cl. 260-67.00r.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers. 3,810,888, Cl. 260-240.00d.
Charbonnier, Roger C., to Adret-Electronique. Variable-ratio electronic counter-divider. 3,811,092, Cl. 328-39.000.
Chasin, Mark: *See*—
Hoehn, Hans; and Chasin, Mark, 3,810,904.
Chem Dynamics, Inc.: *See*—
Smith, Gary E.; and Bailey, John G., Jr., 3,810,600.
Cherevik, Jury Ivanovich: *See*—
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Chesser, Billy G.: *See*—
Browning, William C.; and Chesser, Billy G., 3,810,882.
Chevron Research Company: *See*—
Brown, Melancthon S., 3,810,928.
Ferm, Richard L., 3,810,835.
Chicago Fire Brick Company: *See*—
Parsons, Joseph R.; and Rechter, Harold L., 3,810,768.
Chien, Hwei-Chiu, to Kraftco Corporation. Treatment of soybeans with yeast. 3,810,997, Cl. 426-205.000.
Chimera R. & D. Inc.: *See*—
Druss, Barry Lewis, 3,810,643.
Chollet, Maurice; and Genmat, Francois, to Societe Financiere et Industrielle des Ateliers. Electromagnetic fuel injectors. 3,810,449, Cl. 123-32.0ea.
Churakov, Vladimir Mikhailovich: *See*—
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Churchill, Thomas L.: *See*—
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Ciba (A.R.L.) Limited: *See*—
Dominic, Christopher John; and Garnish, Edward William, 3,810,785.
Ciba-Geigy A.G.: *See*—
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Duerr, Dieter; and von Orelli, Marcus, 3,810,993.
Janiak, Stefan, 3,810,988.
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.
Ciba-Geigy Corporation: *See*—
Anner, Georg; and Wieland, Peter, 3,810,916.
Bohner, Beat; and Rufenacht, Switzerland, 3,810,919.
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, 3,810,834.
Model, Ernst; von der Crone, Jose; and Pugin, Andre, 3,810,889.
Rittel, Werner; and Brugger, Max, 3,810,881.

Cichowski, Robert S., to Phillips Petroleum Company. Dehydrogenation of organic compounds. 3,810,953, Cl. 260-680.00e.

Cincinnati Milacron Chemicals, Inc.: *See—*
Weisfeld, Lewis B.; and Witman, Robert C., 3,810,868.

Cirolla, Carmine: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.

Citizen Watch Company, Limited: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.

Claeson, Karl Goran: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.

Clarke, Robert E. Flowmeter. 3,810,562, Cl. 222-20.000.

Clarke, Ronald Albert William, to Klarcrete Limited. Road levelling machine. 3,810,676, Cl. 299-1.000.

Cline, William, to Lee, Raymond, Organization, Inc., The. Chilled drinking glass container. 3,810,557, Cl. 215-12.000.

Clough, David John: *See—*
McAlpine, Ian; and Clough, David John, 3,810,852.

Cobbledick, David S.: *See—*
Norman, Arthur J.; and Cobbledick, David S., 3,810,851.

Cohen, Milton: *See—*
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.

Coleman, William Earl, to National Cash Register Company, The. Method of fabricating a plasma charge transfer device. 3,810,686, Cl. 316-20.000.

Colgate-Palmolive Company: *See—*
Miles, Gilbert Dwayne, 3,810,479.
Olson, Frank Wesley, Jr.; and Roberts, Karl Hutchson, 3,810,478.

Collardin, Gerhard, GmbH: *See—*
Ries, Christian; and Prymka, Margot, 3,810,792.

Collins Radio Company: *See—*
Griffee, Leslie V.; and Anderson, Mardis V., 3,811,127.

Columbus McKinnon Corporation: *See—*
Schreyer, Kenneth D.; and Manney, Charles J., 3,810,359.

Commanda, Ephrem. Retractable wheels for snowmobiles. 3,810,662, Cl. 280-415.00r.

Commercial Solvents Corporation: *See—*
James, Frank; and Jones, Richard A., 3,810,853.

Commerical Solvent Corporation: *See—*
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, 3,810,918.

Con-Sole Golf Corporation: *See—*
Braly, Joseph M., 3,810,631.

Conflow Irrigation Systems: *See—*
Lodge, Hilmer G., 3,810,582.

Conley, John L. Automatic animal dropping pit cleaner. 3,810,444, Cl. 119-22.000.

Connelly, Lawrence W.: *See—*
McCurdy, Richard H.; and Connelly, Lawrence W., 3,810,331.

Consolidated Foods Corporation: *See—*
Schaffstall, Eugene; and Duncan, Ira J., 3,810,797.
Yoeli, Oded; and Gibbs, Gerald W., 3,810,787.

Constructors Supply Company: *See—*
Carson, William M., 3,810,312.

Consulta-Treuhand GmbH: *See—*
Eyer, Charles, 3,810,721.

Container Corporation of America: *See—*
Gardner, Jeffrey M., 3,810,574.

Continental Conveyor and Equipment Company: *See—*
Studdard, Donald T.; and Morrison, Thomas E., 3,810,678.

Continental Drilling Co.: *See—*
Pack, Kenneth E., 3,810,495.

Control Data Corporation: *See—*
Barbour, William P., 3,810,424.

Controls Company of America: *See—*
Orth, Charles D., 3,810,366.
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., 3,810,488.

Cook, Robert C., to Centre de Recherche Industrielle du Quebec. Method for making an integrated circuit apparatus. 3,810,301, Cl. 29-593.000.

Cope, Kenneth P.; and Pearce, Warren, Jr., to General Motors Corporation. Map and flood light assembly. 3,811,043, Cl. 240-8.160.

Copper Range Company: *See—*
Andrews, Henry L.; and Hay, Donald A., 3,810,757.

Cordi, Vincent A.; and Gurski, Chester S., to International Business Machines Corporation. Item lister using a shift register. 3,811,115, Cl. 340-172.500.

Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, to Societa Italiana Telecomunicazioni Siemens S.p.A. PCM telecommunication system having means for temporary exclusion of voice channels under overload conditions. 3,811,013, Cl. 179-15.0ba.

Coursaut, Henri, to Le Bouchage Mecanique (L.B.M.). Tamper-proof easy-opening bottle cap. 3,810,556, Cl. 215-7.000.

Courtney-Pratt, Jeofry Stuart, to Bell Telephone Laboratories, Incorporated. Measuring small displacements. 3,810,699, Cl. 256-153.000.

Cousins, Terence; and Zanker, Klaus Joachim, to Kent, George, Limited. Flowmeters. 3,810,388, Cl. 73-194.00b.

Coveney, Jack Edward; and Moody, Roy Alleyne, to Panduit Corporation. Wire insertion and splicing system including reaction tool. 3,810,288, Cl. 29-203.00p.

Cowell, Clifton Douglas; and Wright, John Richardson, to Imperial Chemical Industries Limited. Process of increasing the molecular weight of molten polyamides with diaryl esters. 3,810,876, Cl. 260-78.0sc.

Coxon, George Eric: *See—*
Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard, 3,811,063.

Coxon, George Eric, to Thorn Electrical Industries Limited. Manufacture of tungsten halogen lamps. 3,810,685, Cl. 316-20.000.

Crawford Fitting Company: *See—*
Spontellim Leonard P., 3,810,296.

Creaser, Leonard F., to Shell Oil Company. Flexible insulants for containers and conduits. 3,810,839, Cl. 252-62.000.

Crenna, Richard D. Acoustical earpiece for air-push sound systems. 3,810,525, Cl. 181-23.000.

Crisp, David J.; and Ford, Roger A., to N.R. Fitments Limited. Non-refillable fitment. 3,810,558, Cl. 215-21.000.

Crocker, Roger A.: *See—*
Crocker, Roger A.; and Schoolcraft, Jim F. (said Schoolcraft assor. to said), 3,810,553.

Crocker, Roger A.; and Schoolcraft, Jim F., said Schoolcraft assor. to said Crocker, Roger A. Pipe handling device. 3,810,553, Cl. 214-2.500.

Cross, David Edward, to Smiths Industries Limited. Tubing. 3,810,474, Cl. 128-351.000.

Cross, Raymond E. Die casting method. 3,810,505, Cl. 164-113.000.

Crosswell, Flay D.; and Galbreath, Gerald W., to Overhead Door Corporation. Cargo deflector panel. 3,810,672, Cl. 296-106.000.

Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, to Avicon, Inc. Liquid-laid, Non-woven, fibrous collagen derived surgical web having hemostatic and wound sealing properties. 3,810,473, Cl. 128-334.000.

Curran, Adrian Charles Ward: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba, 3,810,893.

Curry, Robert G., Jr., to Westinghouse Electric Corporation. Protection circuit for cathode ray tubes. 3,811,068, Cl. 315-20.000.

Cutter Laboratories, Inc.: *See—*
Lewis, Dan, Jr.; and Von Alven, Raymond D., 3,810,503.

Cyclops Corporation, Universal-Cyclops Specialty Steel Division: *See—*
Kaufman, Ralph O., Sr., 3,810,286.

Daggy, Earl N., to American Standard Inc. Movable panel system. 3,810,330, Cl. 49-127.000.

Daiber, John W.: *See—*
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., 3,811,095.

Daicel Ltd.: *See—*
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.

Daimler-Benz Aktiengesellschaft: *See—*
Blohm, Hans-Jachen, 3,810,607.
Puchas, Christian, 3,810,651.
Schiesterl, Gerhard; and Wulf, Helmut, 3,810,653.

Dalhuisen, Albert J.; and Deis, William H., to Merck & Co., Inc. Chloroprene polymer processing. 3,810,856, Cl. 260-23.70m.

Dar Conte, John M., to Manhattan College. Pile with reinforced leading end. 3,810,363, Cl. 61-53.000.

David, Joseph S. Mining machine dust collector. 3,810,677, Cl. 299-64.000.

Davidson, Alan John; and George, Edwin Francis, to Imperial Chemical Industries Limited. Plant growth regulating composition and process. 3,810,750, Cl. 71-78.000.

Davidson, Hugh; and Leggetter, Brian Ernest, to Hickson & Welch Limited. 3-(Coumarin-3-ylphenyl)-1,2,4-oxadiazol-5-yl ammonium salts. 3,810,901, Cl. 260-293.580.

Dawans, Francois: *See—*
Durand, Jean-Pierre; and Dawans, Francois, 3,810,952.

De Nora, Vittorio: *See—*
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.

DeBano, John, Jr.; and Noll, James L., to General Motors Corporation. Occupant restraint cushion assembly and method of manufacture. 3,810,654, Cl. 280-150.0ab.

Decker, Charles R., III; and Harris, Gregory K. Sports racket. 3,810,620, Cl. 273-73.00h.

Deepsea Ventures, Inc.: *See—*
Kane, William S.; and Cardwell, Paul H., 3,810,827.

Deering Milliken Research Corporation: *See—*
Bylund, Don M.; and Kimble, Victor W., 3,810,810.

Dehlem, Francis E.: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.

Deike, Robert F.: *See—*
Woodhouse, John C., 3,810,450.

Deis, William H.: *See—*
Dalhuisen, Albert J.; and Deis, William H., 3,810,856.

DeLang, Hendrik; and Velzel, Christiaan Hendrik Frans, to U.S. Philips Corporation. Apparatus for reconstructing an image of an object which image has been recorded in holographic form. 3,810,687, Cl. 350-3.500.

DeLeo, Louis P., to Singer Company, The. Phase sensitive demodulator which automatically compensates for variations in the AC reference voltage. 3,811,093, Cl. 329-146.000.

Delkor Industries, Inc.: *See—*
Klund, Robert N.; and Sorenson, Merle H., 3,810,407.

Deluca, John C.: *See—*
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.

Demers, Theodore E.; and Koivunen, Erkki A., to General Motors Corporation. Anti-lock brake system. 3,810,682, Cl. 303-21.00f.

Denis, Henri, to SAFT-Societe des Accumulateurs Fixes et de Traction. Method of effecting electric connection. 3,810,790, Cl. 136-134.00p.

Densow, Ulrich O., to Outboard Marine Corporation. Torque reducing centrifugal clutch. 3,810,533, Cl. 192-105.0ba.

Derbyshire, George Cecil, to Jacons Manufacturing Company Limited, The. Drill chucks. 3,810,642, Cl. 279-62.000.

Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, to Ciba-Geigy A.G. Styryl dyestuffs. 3,810,932, Cl. 260-465.00d.

Deschamps, Andre: *See—*
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.

Desnoyers, Pierre: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Devlieg Machine Company: *See—*
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DeVoy, David D.: *See—*
Lemay, Richard A.; and DeVoy, David D., 3,811,114.

Dezael, Claude: *See—*
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.

Dezaki, Yoshito: *See—*
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.

Di Palma, Hugo Roland. Automatic sprinkling apparatus. 3,810,579, Cl. 239-197.000.

Diamond, Julius; and Douglas, George, to Rorer, William H., Inc. Ethynylindenyl compounds and derivatives thereof. 3,810,944, Cl. 260-612.00r.

Diamond, Julius; and Auyang, King, to Rorer, William H., Inc. Phosphonium compounds for treating gastrointestinal hyperacidity and ulceration. 3,810,979, Cl. 424-198.000.

Diamond, Julius, to Rorer, William H., Inc. S-Triazines for treating gastrointestinal hyperacidity and ulceration. 3,810,985, Cl. 424-249.000.

Dibble, Leland, Jr.: *See—*
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.

Dijkmans, Eise Carel, to U.S. Philips Corporation. Variable frequency astable multivibrator. 3,811,097, Cl. 332-14.000.

Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, to Bell Telephone Laboratories, Incorporated. Magneto-optic modulators. 3,811,096, Cl. 332-7.510.

Dix, James S.: *See—*
Mathis, Ronald D.; and Dix, James S., 3,810,862.

Dixon, Richard H.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.

Doggett, Charles F., to Hawkeye Machinery Corporation. Burial device and method for using same. 3,810,282, Cl. 27-35.000.

Doi, Kazuo; and Kitsuda, Yoshihiro, to British Industrial Plastics Limited. Process for manufacturing initial aminoplast condensates. 3,810,854, Cl. 260-21.000.

Dolci, Silvano: *See—*
Freccero, Renato; and Dolci, Silvano, 3,810,701.

Doll, Martin, to Cellu Products Company. Method of producing laminated stock materials and products. 3,810,800, Cl. 156-78.000.

Dominic, Christopher John; and Garnish, Edward William, to Ciba (A.R.L.) Limited. Carbon fiber composite structures. 3,810,785, Cl. 117-161.0zb.

Domtar Limited: *See—*
Horel, Thomas B., 3,810,501.

Doolittle, Donald B., to All American Industries, Inc. Aircraft arresting barrier. 3,810,595, Cl. 244-110.00c.

Dormavac Corporation, The, mesne: *See—*
Burg, Stanley P.; and Hentschel, William J., 3,810,508.

Doss, Richard C., to Phillips Petroleum Company. Polyacid halide modified copolymers of vinylpyridines and acrylamide or methacrylamide. 3,810,877, Cl. 260-78.40d.

Douglas, George: *See—*
Diamond, Julius; and Douglas, George, 3,810,944.

Douglass, Edward T., Jr. Apparatus for burning refuse. 3,810,432, Cl. 110-18.00r.

Dow Chemical Company, The: *See—*
Dunbar, Joseph E.; and Rogers, Joan H., 3,810,890.
Dunbar, Joseph E., 3,810,922.
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.
Lee, John M., 3,810,891.
Mani, Inder, 3,810,825.
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Rigterink, Raymond H., 3,810,902.
Zachariades, George, 3,810,816.

Dow Corning Corporation: *See—*
Frankenthal, Luigi, 3,810,467.

Doyle, Earl N., to Petro-Form Industries (Trinidad) Ltd. Polymerization of crude petroleum hydrocarbon. 3,810,860, Cl. 260-33.6ub.

Dransfield, Clifford D., to Atlantic Richfield Company. Apparatus for carrying a seismic energy generator. 3,810,524, Cl. 181-.50h.

Drasch, Josef; Scheiber, Robert; and Wessner, Harald, to Vockenhuber, Karl and Hauser, Raimund. Photographic film-handling appliance. 3,810,692, Cl. 352-174.000.

Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, to International Business Machines Corporation. Error testing and error localization in a modular data processing system. 3,810,577, Cl. 235-153.0ac.

Druss, Barry Lewis, to Chimera R. & D. Inc. Ski binding. 3,810,643, Cl. 280-11.35r.

Du Pont de Nemours, E. I., and Company: *See—*
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.

Dubuc, Rene A.: *See—*
Ty, Henry; and Dubuc, Rene A., 3,811,028.

Duerden, Francis: *See—*
Rosenbaum, Harold Matthew; and Duerden, Francis, 3,810,317.

Duerr, Dieter; and von Orelli, Marcus, to Ciba-Geigy AG. Control of acrinae and molluscs with phenylisothiocyanate compounds. 3,810,993, Cl. 424-302.000.

Dugan, Thomas J. Latch. 3,810,667, Cl. 292-346.000.

Duhault, Jacques: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Dumas, Floyd A., to Acrometal Products, Inc. Curing oven for enameled wire. 3,810,736, Cl. 432-59.000.

Dumbaugh, William H., Jr.; and Malmendier, Joseph W. Method for making fused silica glass composites. 3,810,744, Cl. 65-42.000.

Dunbar, Joseph E.; and Rogers, Joan H., to Dow Chemical Company, The. Aminecarbotrithioates and preparation. 3,810,890, Cl. 260-246.00b.

Dunbar, Joseph E., to Dow Chemical Company, The. Sulfur-containing 4-hydroxycoumarins and their salts. 3,810,922, Cl. 260-343.20r.

Duncan, Ira J.: *See—*
Schaffstall, Eugene; and Duncan, Ira J., 3,810,797.

Dunlap Limited: *See—*
Kenney, Michael J., 3,810,278.

Duplessy, Jean. Device to supply a thread. 3,810,494, Cl. 139-122.000.

Durand, Jean-Pierre; and Dawans, Francois, to Institut Francais du Petrole, des Carburants et Lubrifiants. Liquid copolymers of 1,3-butadiene and 1-monolefins, their preparation and uses. 3,810,952, Cl. 260-677.00r.

Dynamit Nobel AG: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Eastman Kodak Company: *See—*
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.
Stahr, Richard W.; and Morse, Theodore H., 3,810,759.

Eberle, William C. Board game apparatus. 3,810,626, Cl. 273-131.0ab.

Edlich, William. Transmission. 3,810,401, Cl. 74-691.000.

Edmunds, John O., to General Motors Corporation. Lock up clutch control. 3,810,531, Cl. 192-3.300.

Edwards, James W.: *See—*
Lemmond, Everett C.; and Edwards, James W., 3,810,345.

Egorov, Vladimir Sergeevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Ehrenfreund, Herbert A., to Polytech Systems, Inc. Process for extruding a foamed closed-cell polyolefin extrudate substantially free from cell collapse by use of a barrier material. 3,810,964, Cl. 264-53.000.

Eifel, Paul J.: *See—*
Hampton, Robert S.; and Eifel, Paul J., 3,810,365.

Eisen, Josef; and Gauger, Horst, to Schloemann Aktiengesellschaft. Movable cable-and conductor infeed arrangement for transport-and change wagons possessing limited mobility with the halls of steel works. 3,811,017, Cl. 191-12.00r.

Electro-Speed Tool Corporation: *See—*
Malkin, Bruce, 3,810,572.

Elle, Erich, to Bau-Stahlgewebe GmbH. Roll stand for cold working of rolled steel in rod or wire form. 3,810,376, Cl. 72-194.000.

Ellis, Glenn, to Sesame Industries, Limited. Closure-forming strip with an attached tear strip structure. 3,810,813, Cl. 161-145.000.

Elm, Robert A., to Minnesota Mining and Manufacturing Company. Flexible base for cable tie. 3,810,596, Cl. 248-47.0pb.

Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., to General Motors Corporation. Cooled turbine blade and its manufacture. 3,810,711, Cl. 416-97.000.

Ennemoser, Joseph O. Vehicle wheel stud drill. 3,810,710, Cl. 408-111.000.

Enrico, Cesare: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, 3,810,984.

Epstein, Roland, to Salamander Aktiengesellschaft. Shoe, especially for aiding children in learning to walk. 3,810,318, Cl. 36-2.50f.

Erdman, Donald C.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.

Erdman, Donald C., Company, Inc.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.
Erdolchemie Gesellschaft mit beschrankter Haftung: *See—*
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Erickson Tool Company: *See—*
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Eriksson, Jan Christer; and Lagergren, Hans Ragnar, to Aminkemi Aktiebolag, mesne. Method of stabilizing heparinized non-thrombogenic plastic surfaces. 3,810,781, Cl. 117-47.00a.
Escher Wyss, G.m.b.H.: *See—*
Kahmann, Albrecht, 3,810,584.
ESPE Fabrik Pharmazeutischer Praparate GmbH: *See—*
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Esso Research and Engineering Company: *See—*
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Vouthier, Marcel, 3,810,645.
Ethyl Corporation: *See—*
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Wiegand, Karl E., 3,810,994.
Zaweski, Edward F., 3,810,869.
Ettie, Alan George Albert Edward: *See—*
Newberry, John; and Ettie, Alan George Albert Edward, 3,810,380.
Evans, Dwight J. Ultrasonic pipeline inspection device. 3,810,384, Cl. 73-67.80s.
Evans Products Company: *See—*
Ford, Ralph E.; and Wright, Kim W., 3,810,274.
Evans, Stephen F.; and Sorensen, Eugene R., to Procter & Gamble Company, The. Machine for packaging flexible articles. 3,810,344, Cl. 53-124.00d.
Eyer, Charles, to Consulta-Treuhand GmbH. Rotary piston machine with bypass regulation. 3,810,721, Cl. 417-440.000.
Eymard, Pierre L.: *See—*
Meunier, Henry E.; and Eymard, Pierre L., 3,810,942.
Fabrika, Ljudmila Petrovna: *See—*
Vasilicv, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Fahey, John J., Jr. Article transport means. 3,810,649, Cl. 280-37.000.
Fairchild Industries, Inc.: *See—*
Summers, George D., 3,810,259.
Fairfield Engineering and Manufacturing Company: *See—*
Blough, Ronald S., 3,810,548.
Fales, Douglas I., to General Motors Corporation. Ignition spark vacuum advance system. 3,810,451, Cl. 123-117.00a.
Famolare, Inc.: *See—*
Famolare, Joseph P., Jr., 3,810,319.
Famolare, Joseph P., Jr., to Famolare, Inc. Clog construction. 3,810,319, Cl. 36-11.500.
Farbwerke Hoechst Aktiengesellschaft: *See—*
Uhl, Klaus; and Fischer, Klaus, 3,810,775.
Fatula, James J., to Ryman Engineering Company. Self-centering rolls. 3,810,571, Cl. 226-192.000.
Faust, Stewart W.: *See—*
Smtih, Thomas R.; and Faust, Stewart W., 3,810,480.
Feasey, Ronald George; and Freeman, John Leslie, to Imperial Chemical Industries Limited. Aromatic polyethers. 3,810,870, Cl. 260-47.00r.
Ferber, Arthur C., to Belmont Casket Manufacturing Company. Casket lid interior trim including molded padding strips. 3,810,281, Cl. 27-19.000.
Ferlux: *See—*
Philippe, Jean B., 3,810,897.
Ferm, Richard L., to Chevron Research Company. Process for treating oil slicks using chemical agnets. 3,810,835, Cl. 210-59.000.
Ferranti, Limited: *See—*
Hulmes, Harold; and Pickin, John Rabert, 3,810,300.
Ferrara, Rudolph A., to General Motors Corporation. Vehicle seat cushion with resilient back bar. 3,810,675, Cl. 297-460.000.
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, to Heathcoat, John, & Company Limited. Method of producing bulked yarns. 3,810,285, Cl. 28-72.110.
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., to University of Oklahoma Foundation, Inc. Lung scanning 99m technetium macroaggregate and method of preparation. 3,810,976, Cl. 424-1.000.
Figge, Irving E.: *See—*
Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., 3,810,803.
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., to Du Pont de Nemours, E. I., and Company. Centrifuge chromatography apparatus and system. 3,810,545, Cl. 210-198.000.
Finke, Ernst-Guenter, to Voith Getriebe KG. Hydrodynamic torque converter. 3,810,362, Cl. 60-362.000.
Firestone Tire & Rubber Company, The: *See—*
Weihe, Don L., 3,810,268.
Fisch, Willy: *See—*
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.
Fischer, Adolf; Koenig, Karl-Heinz; and Reichenecker, Franz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Herbicidal composition of a pyridazone derivative and a carbamoyl-oxy phenyl methyl carbamate. 3,810,751, Cl. 71-92.000.
Fischer, Klaus: *See—*
Uhl, Klaus; and Fischer, Klaus, 3,810,775.
Fisher, Howard M., to Pennsylvania Engineering Corporation. Method of transforming a top-blown steel converter vessel to a bottom-blown type. 3,810,297, Cl. 29-428.000.
Fister, Julius C., Jr.: *See—*
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., 3,810,287.
Fitch, John L.; and Strubhar, Malcolm K., to Mobil Oil Corporation. Method of viscous oil recovery through hydraulically fractured wells. 3,810,510, Cl. 166-271.000.
Flach, Karl Egon: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.
Flegel, George J.; and Scheuer, Nicholas G., to Josam Manufacturing Co. Lavatory carrier bracket and support. 3,810,597, Cl. 248-214.000.
Fleischmann, Lewis W. BOD measuring apparatus. 3,810,738, Cl. 23-230.00r.
Fleming, Myron T., to Thermal Exchange Systems, Inc. apparatus for treating materials. 3,810,315, Cl. 34-160.000.
Fletcher, Geoffrey Charles: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.
FMC Corporation: *See—*
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.
Thomas, James L., 3,810,865.
Ford, Eric Harold, to Lumenition Limited. Fuel injection systems for internal combustion engines. 3,810,448, Cl. 123-32.0ea.
Ford, Harry L.: *See—*
Unger, Peter J.; and Ford, Harry L., 3,811,007.
Ford, James A.; and Butt, Sheldon H., to Olin Corporation. Oxidation resistant nickel base alloys. 3,810,754, Cl. 75-171.000.
Ford Motor Company: *See—*
Morris, Thomas H.; and Wu, Tao-Yuan, 3,810,452.
Ford, Ralph E.; and Wright, Kim W., to Evans Products Company. Pivot and guide rod assembly for bi-fold door. 3,810,274, Cl. 16-169.000.
Ford, Roger A.: *See—*
Crisp, David J.; and Ford, Roger A., 3,810,558.
Fornari, Massima. Mold for manufacturing toothed articles such as combs. 3,810,599, Cl. 249-67.000.
Foster, William R.: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.
Fox, Robert M.; and Truran, Karl, to General Motors Corporation. Vehicle body energy absorbing panel. 3,810,656, Cl. 280-150.00b.
Frankenthal, Luigi, to Dow Corning Corporation. Device for hernia correction. 3,810,467, Cl. 128-95.000.
Freccero, Renato; and Dolci, Silvano, to Major S.p.A. Automatic two-part control device for ball point pens and similar writing instruments. 3,810,701, Cl. 401-110.000.
Freeman, John Leslie: *See—*
Feasey, Ronald George; and Freeman, John Leslie, 3,810,870.
Frick, Richard H.: *See—*
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.
Friedmann, Evan B.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.
Froment, N. J., & Co.: *See—*
Billing, Peter George, 3,811,052.
Fuji Photo Film Co., Ltd.: *See—*
Miyake, Yoshiaki, 3,810,590.
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, to Oriental Yeast Co., Ltd. Method for isolation of enzymes. 3,810,823, Cl. 195-66.00r.
Fujita, Kinji, to Kabushiki Kaisha Suwa Seikosha. Time correcting apparatus for an electronic timepiece. 3,810,356, Cl. 58-23.00r.
Fujitsu Limited: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, 3,811,061.
Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, to Matsushita Electric Industrial Co., Ltd. Facsimile device. 3,811,009, Cl. 178-6.700.
Fulk, James B. Method and apparatus for gathering webs of paper. 3,810,569, Cl. 226-109.000.
Fuller & Sadao, Incorporated: *See—*
Sadao, Shoji, 3,810,336.
Fuller, Walter T.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, to Hoffmann-La Roche Inc.

Processes and intermediates for benzindenes. 3,810,915, Cl. 260-340.900.

Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., to Bonnet, Walter, Inc. Boat windshield mounting means. 3,810,267, Cl. 9-1.00r.

Galbreath, Gerald W.: *See*—
Crosswell, Flay D.; and Galbreath, Gerald W., 3,810,672.

Galigher Company, The: *See*—
Huntington, Fred R., 3,810,537.

Gallone, Patrizio: *See*—
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.

Galmiche, Philippe, to Office National d'Etudes et de Recherches Aerospatiales (par abreviation: O.N.E.R.A.). Process of forming diffusion alloys on metallic refractory materials. 3,810,782, Cl. 117-107.20p.

Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., to International Harvester Company. Vehicle transmission assembly. 3,810,519, Cl. 180-70.00r.

Gam Rad, Incorporated: *See*—
Shea, James J., 3,810,695.

Garanov, Viktor Nikolaevich: *See*—
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, to U.S. Philips Corporation. Method of manufacturing an electric discharge tube having an electron emitting electrode comprising a cesium-containing layer on a support. 3,811,002, Cl. 316-.500.

Gardner, Gerald Marvin, to Image Analysing Computers Limited. Video signal sampling device for use in image analysis systems. 3,811,109, Cl. 340-146.3ac.

Gardner, Jeffrey M., to Container Corporation of America. Self-locking tray. 3,810,574, Cl. 229-31.0fs.

Garmon, Lee F., Jr., to Victor Comptometer Corporation. Pneumatic gun with polygonal cross-section belt member. 3,810,455, Cl. 124-13.00a.

Garnish, Edward William: *See*—
Dominic, Christopher John; and Garnish, Edward William, 3,810,785.

Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, to Societe Nationale des Petroles d'Aquitaine pour Aquitaine. Bituminous compositions containing plastic or elastomer polysulphide polymers. 3,810,857, Cl. 260-28.000.

Gasc, Jean-Claude: *See*—
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.

Gauger, Horst: *See*—
Eisen, Josef; and Gauger, Horst, 3,811,017.

Gaughan, Edmund Jeremiah, to Stauffer Chemical Company. (N-Alkoxyalyl)-o-alkyl-S-alkylthiophasphors-amides. 3,810,959, Cl. 260-941.000.

Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, to Dynamit Nobel AG. Explosive charge actuated valve. 3,810,485, Cl. 137-71.000.

Gec-Elliott Mechanical Handling Limited: *See*—
Moyes, Martin Gerald, 3,810,538.

Geist, Kenneth R.; and Walsh, James E., 1/2 interest to Brust, John J. Method for measuring alcoholic content of a liquid. 3,810,737, Cl. 23-230.00r.

General Electric Company: *See*—
Arendt, Ronald H.; and Vanburen, Charles E., 3,810,973.
Banucci, Eugene G., 3,810,933.
Boldebuck, Edith M., 3,810,858.
Greblunas, Joseph A., 3,811,078.
Hay, Allan S.; and Relles, Howard M., 3,810,879.
Herrick, Carlyle S.; and Shultz, Allan R., 3,810,814.
Relles, Howard M., 3,810,913.
Slusarczuk, George M. J.; and Brown, John F., Jr., 3,810,843.
Weinfurt, Phillip T.; and Lijewski, Robert P., 3,811,040.

General Foods Corporation: *See*—
Balling, T. Thomas; and Mahlmann, James P., 3,810,999.
Biscardi, Salvatore F.; and Zeitlin, Benjamin R., 3,810,995.
Holzberg, Irving, 3,810,766.

General Motors Corporation: *See*—
Campbell, David D., 3,810,657.
Cope, Kenneth P.; and Pearce, Warren, Jr., 3,811,043.
DeBano, John, Jr.; and Noll, James L., 3,810,654.
Demers, Theodore E.; and Koivunen, Erkki A., 3,810,682.
Edmunds, John O., 3,810,531.
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.
Fales, Douglas I., 3,810,451.
Ferrara, Rudolph A., 3,810,675.
Fox, Robert M.; and Truran, Karl, 3,810,656.
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.
Prachar, Otakar P., 3,810,655.
Schenk, Donald E., 3,810,680.
Schluckebier, Floyd A.; and Harkrader, Ronald L., 3,810,399.
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Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.

General Precision Industries Limited: *See*—
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General Tire & Rubber Company, The: *See*—
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George, Edwin Francis: *See*—
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George, Richard Alexander. Pye Limited Burners for chemical analysis. 3,810,583, Cl. 239-597.000.

Georges Lagain: *See*—
Ravel, Leon, 3,810,420.

Georges, Michael P. Component sorting and segregating system. 3,810,540, Cl. 209-73.000.

Gerber, Heinz Joseph, to Gerber Scientific Instrument Company, The. Method for generating contoured part holders. 3,810,414, Cl. 90-11.00c.

Gerber Scientific Instrument Company, The: *See*—
Gerber, Heinz Joseph, 3,810,414.

Gerhard, Sidney. Electrical connector. 3,811,105, Cl. 339-98.000.

Gerisch, Gunther, to Max-Planck-Gesellschaft zur Forderung der Wissenschafter e.V. Process for obtaining a phosphodiesterase from dictyostelium discoideum. 3,810,822, Cl. 195-65.000.

Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, to Agfa-Gevaert Aktiengesellschaft. Cartridge for motion picture film. 3,810,594, Cl. 242-194.000.

Giansante, Joseph A. Atmosphere control system for growing mushrooms and the like. 3,810,327, Cl. 47-1.100.

Gibbs, Gerald W.: *See*—
Yocli, Oded; and Gibbs, Gerald W., 3,810,787.

Giesselmann, Monica Linnea. Arrangement for cutting the threads in a sewing machine when changing the bobbin thread. 3,810,439, Cl. 112-252.000.

Gillette Company, The: *See*—
Perry, Roger L., 3,810,305.

Gillette, Robert H., to Micromatic Industries, Inc. Honing tool. 3,810,333, Cl. 51-338.000.

Giovanniello, Michael A. Licking device for a vehicle transmission shift lever. 3,810,369, Cl. 70-202.000.

Girard, Robert R., to ACF Industries, Incorporated. Universal draft pocket arrangement. 3,810,552, Cl. 213-8.000.

Gloster, Arthur; and Bockino, Harry G., to Texas Gulf, Inc. Process for removing chromium from cooling tower blowdown streams. 3,810,542, Cl. 210-50.000.

Goens, Georges: *See*—
Schmid, August; and Goens, Georges, 3,810,617.

Goff, Frank M.: *See*—
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3;810,871.

Gold, Elijah H., to Schering Corporation. 1-Adamantyl-2-carboxy-azacylic compounds. 3,810,884, Cl. 260-239.00a.

Golden, William R.: *See*—
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Goldsworthy Engineering, Inc., mesne: *See*—
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.

Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., to Goldsworthy Engineering, Inc., mesne. Geodesic path length compensator for composite-tape placement head. 3,810,805, Cl. 156-361.000.

Gonzales, Michael; Benton, Richard H.; and Moore, William G., to Dibble, Leland, Jr. Game having captured marble exposed for digital manipulation. 3,810,630, Cl. 273-153.00s.

Gonzalez, Raymond J.: *See*—
Heim, Alan M.; and Gonzalez, Raymond J., 3,811,121.

Goodrich, B. F., Company, The: *See*—
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Mikofalvy, Bela K., 3,810,859.
Parker, Richard G., 3,810,930.

Goodrich, Robert S.: *See*—
Kightlinger, Ronald J.; and Goodrich, Robert S., 3,810,446.

Gormley, William T.; and Russ, Muchere C., to Koppers Company, Inc. Phosphorus-containing monoesters of unsaturated dicarboxylic acids. 3,810,960, Cl. 260-952.000.

Gorski, Paul T., to Reliance Electric Company. Bearing sealing structure. 3,810,636, Cl. 277-94.000.

Gottwald, Gunther: *See*—
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Gotze, Johannes: *See*—
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.

Grace, W. R., & Co.: *See*—
Maselli, James Michael; and Kim, Gwan, 3,810,921.
Steyermark, Paul R., 3,810,842.

Graham, Arthur E.: *See*—
Banks, Bobby R.; and Graham, Arthur E., 3,810,776.

Grainger, Lewis M. Di Anti-pollution steam generation system. 3,810,447, Cl. 122-248.000.

Graphicart Internationale Ausrustungsgesellschaft fur graphische kunst AG: *See*—
Baumgartner, Kurt, 3,810,272.

Gray, Charles John: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.

Greblunas, Joseph A., to General Electric Company. DC motor drive system for winding reel. 3,811,078, Cl. 318-99.000.

Green, Bernard J.; and Green, Milton J. Vehicle wheel weight locator. 3,810,392, Cl. 73-458.000.

Green, Joseph H. Automatic slack adjuster for cable cylinder assembly. 3,810,397, Cl. 74-110.000.

Green, Milton J.: *See—*
Green, Bernard J.; and Green, Milton J., 3,810,392.

Greenwald, Harry, to Kidde, Walter, & Company, Inc. Coin controlled appliance timer. 3,810,396, Cl. 74-107.000.

Gregoire, Jean-Francois: *See—*
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.

Grewer, Rudolf: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.

Griffee, Leslie V.; and Anderson, Mardis V., to Collins Radio Company. Antenna for airborne satellite communications. 3,811,127, Cl. 343-705.000.

Griffoul, Marcel P.: *See—*
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., 3,810,488.

Grimm, Henry B.; Matsuo, Chickau; and Wilborn, Donald C. Portable sectional racetrack for automobiles or motorcycles. 3,810,706, Cl. 404-1.000.

Grossman, Abraham. Multipurpose weatherstrip construction. 3,810,332, Cl. 49-421.000.

Grube, William L., to MacLean-Fogg Lock Nut Co. Application tool for pierce nuts in strip form. 3,810,290, Cl. 29-208.00d.

GSW Appliances Limited: *See—*
Smith, William E., 3,810,275.

GTE Sylvania Incorporated: *See—*
Perkins, Richard E., 3,810,541.

Guidosh, Edward F., to Westinghouse Electric Corporation. Vacuum switch drive mechanism. 3,811,022, Cl. 200-144.00b.

Gulf Research & Development: *See—*
Beuther, Harold; and Henke, Alfred M., 3,810,771.

Gulling, Jack N. Suspended quoit target. 3,810,625, Cl. 273-104.000.

Gurski, Chester S.: *See—*
Cordi, Vincent A.; and Gurski, Chester S., 3,811,115.

Gutekunst, Werner, to Rexroth, G. L., GmbH. Valve for use in hydraulic machines. 3,810,486, Cl. 137-269.000.

Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, to Hoffmann-La Roche Inc. Citric acid derivatives. 3,810,931, Cl. 260-456.00r.

Gutman, Arnold D., to Stauffer Chemical Company. Insecticidal phosphonyl cyanodithioimido carbonates. 3,810,982, Cl. 424-210.000.

Ha, In W.; and Touchton, James J., to Itel Corporation, mesne. Electronic tachometer. 3,811,091, Cl. 328-1.000.

Haack, Werner, to Pfister Waagen GmbH. Weighing apparatus. 3,810,638, Cl. 177-213.000.

Habib, Nissin, to Bell Telephone Laboratories, Incorporated. Video clamping circuit with variable clamping level during blanking. 3,811,053, Cl. 307-237.000.

Hadley, Richard E.: *See—*
Harrell, Robert E.; and Hadley, Richard E., 3,810,694.

Hagedorn, Erwin C.; and Hall, Dallas P., to Owens-Illinois, Inc. Method of adding glass colorant composition. 3,810,745, Cl. 65-134.000.

Hakansson, Sven Anders Samuel, to Kommanditbolaget United Stirling (Sweden) AB & Co. Reciprocating rod sealing means for hot gas engines. 3,810,634, Cl. 277-3.000.

Hall, C. P., Company, The: *See—*
Kuceski, Vincent P., 3,810,937.

Hall, Dallas P.: *See—*
Hagedorn, Erwin C.; and Hall, Dallas P., 3,810,745.

Hall, Robert J.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.

Hallenius, Nils Ragnar, to Innovia Logislekmaskiner AB. Collapsable storage container. 3,810,648, Cl. 280-33.99r.

Halls, Lawrence M.: *See—*
Hurlburt, Joseph C.; and Halls, Lawrence M., 3,810,517.

Halpern, Samuel E.: *See—*
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., 3,810,976.

Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, to Taiho Pharmaceutical Company, Limited. Process for producing antilipemic substance. 3,810,978, Cl. 424-95.000.

Hamilton, James Guthrie: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.

Hamm, Jeffrey E.; and Jenson, Robert S. Low energy indicator. 3,811,123, Cl. 340-249.000.

Hammann, Ingeborg: *See—*
Hoffmann, Hellmut; and Hammann, Ingeborg, 3,810,911.

Hampton, Robert S.; and Eifel, Paul J., to Lox Equipment Company. Method of distributing carbon dioxide. 3,810,365, Cl. 62-48.000.

Hanc, Toshihide: *See—*
Fukumoto, Akira; Hanc, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.

Hannabery, Ad R. Cable terminating machine. 3,810,289, Cl. 29-203.00d.

Hanscom, Genevieve I.: *See—*
Lazzarini, Louis P., 3,811,000.

Hanscom, Genevieve I., (formerly Magnuson, Genevieve I.): *See—*
Lazzarini, Louis P., 3,811,000.

Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, to National Cash Register Company, The. Color bar printer. 3,810,423, Cl. 101-93.00c.

Hansen, Robert L.: *See—*
Rice, David E.; and Hansen, Robert L., 3,810,875.

Hardesty, Ethridge E.: *See—*
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.

Hardwick, Charles W.: *See—*
Taylor, Clifton I.; and Hardwick, Charles W., 3,810,263.

Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, to Itek Corporation. Multiple image registration system. 3,811,011, Cl. 178-6.800.

Harkrader, Ronald L.: *See—*
Schluckebier, Floyd A.; and Harkrader, Ronald L., 3,810,399.

Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., to Dow Chemical Company, The. Sorbent. 3,810,468, Cl. 128-156.000.

Harrap, Victor: *See—*
Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., 3,810,796.

Harrell, John F.: *See—*
Welhart, Erwin K.; Voss, David L.; and Harrell, John F., 3,810,815.

Harrell, Robert E.; and Hadley, Richard E., to Western Litho Plate & Supply Co. Photographic printing apparatus. 3,810,694, Cl. 355-18.000.

Harris, Arthur: *See—*
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, 3,810,834.

Harris, Gregory K.: *See—*
Decker, Charles R., III; and Harris, Gregory K., 3,810,620.

Harris, Michael R., to Baldwin, D. H., Company. Rhythm accompaniment system. 3,811,003, Cl. 84-1.030.

Hart, Royal V. Mat for mounting prints. 3,810,324, Cl. 40-158.00r.

Hartog, Thomas J.: *See—*
Hillberg, Robert L.; and Hartog, Thomas J., 3,810,326.

Hatcher, Victor E. Panel securing latch. 3,810,666, Cl. 292-262.000.

Hatton, John A., Jr.; and McNally, John S., to Koppers Company, Inc. Polymerizable unsaturated polyester resin compositions and articles made therefrom. 3,810,863, Cl. 260-40.00r.

Haugen, Haakon, to Texaco Inc. and Oligomeric phosphorodiamidate. . 3,810,838, Cl. 252-46.700.

Hauser, Charles Frank, to Union Carbide Corporation. Process for producing acid chlorides. 3,810,940, Cl. 260-544.00m.

Hauser, Raimund: *See—*
Drasch, Josef; Scheiber, Robert; and Wessner, Harald, 3,810,692.

Haven, Robert L., to Stanley Works, The. Dispensing machine for coil stock. 3,810,591, Cl. 242-78.600.

Hawkeye Machinery Corporation: *See—*
Doggett, Charles F., 3,810,282.

Hay, Allan S.; and Relles, Howard M., to General Electric Company. Method for making aromatic hydrocarbon polymers and products produced thereby. 3,810,879, Cl. 260-93.50r.

Hay, Donald A.: *See—*
Andrews, Henry L.; and Hay, Donald A., 3,810,757.

Hayami, Heijiro: *See—*
Fukumoto, Akira; Hanc, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.

Haynes, Cecil David: *See—*
Weaving, John Harold; and Haynes, Cecil David, 3,810,361.

Hazzard, Noel D., to Air Preheater Company, Inc. Recirculation of gases generated in ash pit. 3,810,431, Cl. 110-8.00a.

HC Products Co.: *See—*
Wolfert, Clarke K., 3,810,338.

Heathcoat, John, & Company Limited: *See—*
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.

Hegarty, Gerald R.: *See—*
Sato, Kunito; and Hegarty, Gerald R., 3,810,998.

Heibye, Paulus; and Heibye, Rolf. Method of producing thin, flexible heating elements. 3,810,304, Cl. 29-611.000.

Heibye, Rolf: *See—*
Heibye, Paulus; and Heibye, Rolf, 3,810,304.

Heim, Alan M.: *See—*
Raber, Samuel; and Heim, Alan M., 3,811,122.

Heim, Alan M.; and Gonzalez, Raymond J., to Baker Industries, Inc. Supervised battery power supply. 3,811,121, Cl. 340-249.000.

Hekimian Laboratories, Inc.: *See—*
Kekimian, Norris C., 3,811,088.

Heller, Wilhelm, to Krupp, Fried., Huttenwerke A.G., Firma. Process of manufacturing a reinforcing bar steel for prestressed concrete. 3,810,793, Cl. 148-12.000.

Hengstler, J., K.G.: *See—*
Neher, Hans, 3,811,032.

Henke, Alfred M.: *See—*
Beuther, Harold; and Henke, Alfred M., 3,810,771.

Hentschel, William J.: *See—*

Burg, Stanley P.; and Hentschel, William J., 3,810,508.

Herd, Josef; and Jakob, Hans, to Maschinenfabrik Goebel GmbH. Arrangement for the production of connecting points between superimposed webs, especially continuous forms. 3,810,809, Cl. 156-468.000.

Hermann, Karl-Heinz: *See*—
Tacke, Peter; and Hermann, Karl-Heinz, 3,810,861.

Herrick, Carlyle S.; and Shultz, Allan R., to General Electric Company. Asymmetric polymer membranes of reduced elastic modulus. 3,810,814, Cl. 161-159.000.

Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., to Monarch Marking Systems, Inc. Coded record interpreting system. 3,811,033, Cl. 235-61.11c.

Hershey, Harold Jacob: *See*—
Breitung, Glen A.; and Hershey, Harold Jacob, 3,810,575.

Hessburg, Philip C. Training device for swimmers. 3,810,614, Cl. 272-71.000.

Heyne, Karl-August: *See*—
Bottcher, Lutz; and Heyne, Karl-August, 3,810,457.

Hicks, John R., to Applied Power Industries, Inc. Vehicle frame gauge. 3,810,313, Cl. 33-288.000.

Hickson & Welch Limited: *See*—
Davidson, Hugh; and Leggetter, Brian Ernest, 3,810,901.

Hidaka, Hiroyoshi: *See*—
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.

Hidassy, Laszlo, to Thomas & Betts Corporation. Tool jaws. 3,810,498, Cl. 140-93.00a.

Higuchi, Masaru: *See*—
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.

Hijioka, Yoshito: *See*—
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.

Hilderbrandt, Ullrich, to Linde Aktiengesellschaft. Method of insulating conduit. 3,810,491, Cl. 138-149.000.

Hildreth, Donald M.; and Tyler, Edward P. Remote control engine starter. 3,811,049, Cl. 290-38.000.

Hill, Homer G.: *See*—
Wong, Robert; and Hill, Homer G., 3,810,784.

Hillberg, Robert L.; and Hartog, Thomas J., to Browning Arms Company. Construction for revolvers. 3,810,326, Cl. 42-59.000.

Hiller, P. Russell. Photographic slide container and transfer device. 3,810,539, Cl. 206-73.000.

Hillman, Edwin K. Wind powered motive apparatus. 3,810,712, Cl. 416-117.000.

Hirschel, Armin: *See*—
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, 3,810,799.

Hitachi, Ltd.: *See*—
Inose, Fumiyuki; and Kita, Yuzo, 3,811,110.
Katagiri, Shinjiro; and Tonomura, Akira, 3,811,059.
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.
Takasaki, Yoshitaka; and Aoki, Kouji, 3,811,016.
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.

Hitachi Shipbuilding and Engineering Company Ltd.: *See*—
Shudo, Yasunobu, 3,810,547.

Hitomi, Nobuteru: *See*—
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, 3,810,395.

Hobrough, Gilbert: *See*—
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, 3,811,011.

Hochn, Hans; and Chasin, Mark, to Squibb, E. R., & Sons, Inc. Hydrazides of pyrazolopyridine carboxylic acids and esters. 3,810,904, Cl. 260-295.50b.

Hochn, Hans; and Bernstein, Jack, to Squibb, E. R., & Sons, Inc. Pyrazolo(3,4-b)pyridine-5-carboxamides. 3,810,905, Cl. 260-295.50b.

Hoell, John. Method of making electrical transformer means. 3,810,303, Cl. 29-605.000.

Hoffmann, Hellmut; and Hammann, Ingeborg, to Bayer Aktiengesellschaft. N,N-dimethyl-O-[1-alkyl-4-cyano-5-alkoxypyrazol (3)yl]-carbamic acid esters. 3,810,911, Cl. 260-310.00r.

Hoffmann-La Roche Inc.: *See*—
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Kaplan, Jean-Pierre; and Kyburz, Emilio, 3,811,026.
Lartigue, Gerard; and Rousselet, Andre, 3,810,720.
Leimgruber, Willy; and Weigele, Manfred, 3,810,935.
Mohacsi, Ernest; and Leimgruber, Willy, 3,810,899.
Saucy, Gabriel, 3,810,909.

Holland Hitch Company: *See*—
Berends, Howard P., 3,810,663.

Hollander, Kurt W. Flush valve assembly for tank. 3,810,261, Cl. 4-41.000.

Holman, Benedictus Timotheus, to U.S. Philips Corporation. Television camera comprising an interference-free mesh connection conductor. 3,811,066, Cl. 315-10.000.

Holst, Dennis W., to Martin Marietta Corporation. Antenna array for grating lobe and sidelobe suppression. 3,811,129, Cl. 343-844.000.

Holz, Heinrich. Multipart joining element for butt and corner joints. 3,810,341, Cl. 52-753.00c.

Holzberg, Irving, to General Foods Corporation. Method of extracting roasted coffee. 3,810,766, Cl. 426-386.000.

Honeywell Information Systems, Inc.: *See*—
Howell, Thomas Harold, 3,811,108.
Lemay, Richard A.; and DeVoy, David D., 3,811,114.
Stafford, John P., 3,811,039.

Hooker Chemical Corporation: *See*—
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Takahashi, Akio; and Lemper, Anthony L., 3,810,958.

Horel, Thomas B., to Domtar Limited. Post domer. 3,810,501, Cl. 144-30.000.

Horio, Takekazu: *See*—
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.

Horiuchi, Kenji: *See*—
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.

Host, Pierre L., to Etablissements Carpano & Pons S.A. Fishing reel. 3,810,592, Cl. 242-84.51a.

Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, to Saab-Scania Aktiebolag. Control command seucrity in binary remote control. 3,811,112, Cl. 340-164.00r.

Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, to Ciba-Geigy Corporation. Aqueous acid tin-plating bath. 3,810,824, Cl. 204-54.00r.

Howell, Thomas Harold, to Honeywell Information Systems, Inc. Reverse cyclic code error correction. 3,811,108, Cl. 340-146.1al.

Hubsch, Gunter: *See*—
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Hudson, Norman H. Anti-dive banking suspension apparatus for vehicles. 3,810,650, Cl. 280-124.00f.

Hugon, Pierre: *See*—
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Hulmes, Harold; and Pickin, John Rabert, to Ferranti, Limited. Electrical circuit assemblies. 3,810,300, Cl. 29-574.000.

Humbarger, Ross C.: *See*—
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., 3,811,033.

Humphrey, Robert Walter; and Moss, Gerald, to Esso Research and Engineering Company. Reduction of sulphur oxides. 3,810,972, Cl. 423-569.000.

Hunt, John. Pollution free fuel inlet system for internal combustion engines. 3,810,454, Cl. 123-142.000.

Hunter, James, Machine Company, Inc.: *See*—
Brochetti, Raymond E., 3,810,284.

Huntington, Fred R., to Galigher Company, The. Belt feeder. 3,810,537, Cl. 198-57.000.

Hurlburt, Joseph C.; and Halls, Lawrence M., to Sperry Rand Corporation. Loader drive. 3,810,517, Cl. 180-49.000.

Hurlbut, Gordon: *See*—
Ianuzzi, Joseph N.; and Hurlbut, Gordon, 3,810,403.

Hurschman, Alfred A., to Ampoules, Inc. Multiple compartment hypodermic devices. 3,810,469, Cl. 128-218.00m.

Hutchins, Burleigh M., Jr.: *See*—
Abrahams, Louis; and Hutchins, Burleigh M., Jr., 3,810,716.

Hutchins, Burleigh M., Jr., to Waters Associates, Inc. Improved analytical apparatus for measuring light absorbance of fluids. 3,810,696, Cl. 356-93.000.

Ianuzzi, Joseph N.; and Hurlbut, Gordon, to Union Electronics (a Division of Union Corporation, The). Contact lens edging machine. 3,810,403, Cl. 82-1.00c.

Ibex Precision Products, Inc.: *See*—
Longarzo, Roland P., 3,810,550.

Ichida, Takeshige: *See*—
Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, 3,811,113.

Ikeda, Yuichi: *See*—
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Iller, Adabelle E.: *See*—
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Iller, John A., 50% to Iller, Adabelle E. Hardtop cover for convertible runabout boats. 3,810,266, Cl. 9-1.00r.

Illinois Tool Works Inc.: *See*—
Swick, Edwin Grant; and Nelson, John Frederick, 3,810,279.

Image Analysing Computers Limited: *See*—
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Imperial Chemical Industries Limited: *See*—
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Cowell, Clifton Douglas; and Wright, John Richardson, 3,810,876.
Davidson, Alan John; and George, Edwin Francis, 3,810,750.
Feasey, Ronald George; and Freeman, John Leslie, 3,810,870.
Jones, Geraint; and Raphael, Ralph Alexander, 3,810,943.

Ingro, Ben. Wall climbing devices. 3,810,515, Cl. 180-1.0vs.

Innovia Logisiekmaskiner AB: *See*—
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Inose, Fumiyuki; and Kita, Yuzo, to Hitachi, Ltd. Arrangement for normalizing two-dimensional pattern. 3,811,110, Cl. 340-146.30h.

Institut Francais du Petrole, des Carburants et Lubrifiants: *See*—
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Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.
International Business Machines Corporation: *See—*
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.
Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, 3,811,117.
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Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.
Kleen, Bergert G.; and Lamoureux, William R., 3,811,124.
Smith, William Michael, Jr., 3,811,076.
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International Computers Limited: *See—*
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International Harvester Company: *See—*
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Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.
International Standard Electric Corporation: *See—*
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International Telephone and Telegraph Corporation: *See—*
Buchholz, Richard Frank; and Reintjes, Marten, 3,810,941.
Iovine, Carmine P.: *See—*
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Iowa Beef Processors, Inc.: *See—*
Barbee, Wilford O., 3,810,277.
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Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
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Itek Corporation: *See—*
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Ito, Kazuo, to Kabushiki Kaisha Daini Seikosha. Electronic circuit for quartz crystal watch. 3,810,355, Cl. 58-23.00a.
Ito, Naganori; and Aikawa, Hiroshi, to Nissan Motor Company, Limited. Hydropneumatic suspension unit for a road vehicle. 3,810,611, Cl. 267-64.00r.
Ito, Shinya, to Kabushiki Kaisha Tokai Kika Denki Seisakusho. Automatic reset hydraulic switch. 3,811,021, Cl. 200-82.00d.
Ito, Yoshie: *See—*
Matsushita, Teruko, 3,811,041.
Iwata, Masayoshi; and Maeda, Tsuneo, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Automatic damping device for braking a vehicle. 3,810,520, Cl. 180-103.000.
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., to Ashland Oil, Inc. Apparatus for backing tufted carpet. 3,810,807, Cl. 156-381.000.
Jacobs, Arthur W. Injection molding machine. 3,810,728, Cl. 425-244.000.
Jacobs, Hubert Hudson; and Jacobs, Virginia Michael. Milking system. 3,810,442, Cl. 119-14.030.
Jacobs, Jimmy L. Ball and cup game demonstrating properties of inertia. 3,810,623, Cl. 273-101.000.
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Jacobs, Hubert Hudson; and Jacobs, Virginia Michael, 3,810,442.
Jacons Manufacturing Company Limited, The: *See—*
Derbyshire, George Cecil, 3,810,642.
Jakob, Hans: *See—*
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James, Frank; and Jones, Richard A., to Commercial Solvents Corporation. Acid-curing thermosetting coating composition. 3,810,853, Cl. 260-21.000.
James, Russell H. Automatic fire extinguishing system. 3,810,511, Cl. 169-37.000.
Janiak, Stefan, to Ciba-Geigy AG. Control of phytopathogenic fungi with N-benzothiazole-2-yl N'-propylureas. 3,810,988, Cl. 424-270.000.
Japan Atomic Energy Research Institute: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Jarke Corporation: *See—*
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Jason, Alfred Charles, to National Research Development Corporation. Hygrometers. 3,810,389, Cl. 73-336.500.
Jay, Richard S., to Jarke Corporation. Wheel chock. 3,810,530, Cl. 188-32.000.
Jayaraman, Ponnusami: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Jeandel, Ferdinand. Engines and compressors of the kind in which a valve device engages with a helicoidal rotor. 3,810,722, Cl. 418-195.000.
Jefferson Chemical Company, Inc.: *See—*
Rowton, Richard Lee, 3,810,850.
Jeffery, Philip Auriol Edgar, to United Aircraft Corporation. Jettison device for helicopter load carrying system. 3,810,671, Cl. 294-83.0ae.
Jenny, Walter: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Jenson, Robert S.: *See—*
Hamm, Jeffrey E.; and Jenson, Robert S., 3,811,123.
Jeppesen, Jerry J. Apparatus for immobilizing a vehicle. 3,810,370, Cl. 70-225.000.
Jerue, Richard A., to Devlieg Machine Company. Machine tool with automatic tool changing mechanism. 3,810,299, Cl. 29-568.000.
Jochum, Peter: *See—*
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.
Joel, Amos Edward, Jr., to Bell Telephone Laboratories, Incorporated. Intermedium magnetic domain logic control arrangement. 3,811,118, Cl. 340-174.0tf.
Johnson, C. Sherman, Co., Inc.: *See—*
Johnson, Curtiss S., Jr., 3,810,440.
Johnson, Carl E.: *See—*
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.
Johnson, Curtiss S., Jr., to Johnson, C. Sherman, Co., Inc. Steering mechanism for sailboats and the like. 3,810,440, Cl. 114-162.000.
Johnson, Matthey & Mallory Limited: *See—*
Jordan, David R., 3,810,755.
Johnson, Robert. Fluid pressure device. 3,810,723, Cl. 428-205.000.
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., to International Harvester Company. Safety lock lever and starting safety switch operable thereby. 3,811,020, Cl. 200-61.880.
Johnson Service Company: *See—*
Matthews, Russell B., 3,810,578.
Johnson, Theodore B. Ground anchor. 3,810,364, Cl. 61-72.100.
Johnston, Robert Bernard: *See—*
Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard, 3,811,063.
Joiner, Walter Charles, to Westland Aircraft Limited. Helicopter rotor systems. 3,810,713, Cl. 416-205.000.
Jones, Geraint; and Raphael, Ralph Alexander, to Imperial Chemical Industries Limited. Cyclopentane dialdehydes. 3,810,943, Cl. 260-600.000.
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, to Ciba-Geigy Corporation. Treatment of water or aqueous systems. 3,810,834, Cl. 210-58.000.
Jones, Richard A.: *See—*
James, Frank; and Jones, Richard A., 3,810,853.
Jordan, David R., to Johnson, Matthey & Mallory Limited. Gold alloy for jewelry. 3,810,755, Cl. 75-165.000.
Jorwa, Mildred M. Exercise and weight reduction device. 3,810,613, Cl. 272-57.00r.
Josam Manufacturing Co.: *See—*
Flegel, George J.; and Scheuer, Nicholas G., 3,810,597.
Joslyn Mfg. and Supply Co.: *See—*
Kawiecki, Chester J., 3,811,064.
Jurd, Leonard; and King, Alfred Douglas, Jr., to United States of America, Agriculture. Inhibiting growth of bacteria. 3,810,990, Cl. 424-283.000.
Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft: *See—*
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, 3,810,799.
Kabushiki Kaisha Daini Seikosha: *See—*
Ito, Kazuo, 3,810,355.
Kabushiki Kaisha Koparu: *See—*
Murata, Kingo, 3,810,357.
Kabushiki Kaisha Meidensha: *See—*
Tsukajaki, Shohei, 3,810,586.
Kabushiki Kaisha Suwa Seikosha: *See—*
Fujita, Kinji, 3,810,356.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See—*
Ito, Shinya, 3,811,021.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See—*
Iwata, Masayoshi; and Maeda, Tsuneo, 3,810,520.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Miyazaki, Tsutomu; and Suzuki, Yoshihisa, 3,810,352.
Kagi, Dieter: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Kahmann, Albrecht, to Escher Wyss, G.m.b.H. Grinding apparatus for fibrous material. 3,810,584, Cl. 241-37.000.
Kajihara, Motoyoshi: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Kallenbach, Ralph M. Railway car roll control device. 3,810,429, Cl. 105-199.00a.
Kalter, Howard Lee: *See—*
Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, 3,811,117.
Kammann, Werner, Firma: *See—*
Kammann, Wilfried, 3,810,422.
Kammann, Wilfried, to Kammann, Werner, Firma. Screen printing machine for articles with curved non-circular cross-sectional. 3,810,422, Cl. 101-40.000.

Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, to Agfa-Gevaert Aktiengesellschaft. Photographic dry copying process with acylacetonitrile. 3,810,760, Cl. 96-29.00d.

Kanayama, Mitsuru: *See*—
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

Kane, William S.; and Cardwell, Paul H., to Deepsea Ventures, Inc. Method for separating metal values from ocean floor nodule ore. 3,810,827, Cl. 204-105.00m.

Kanegafuchi Boseki Kabushiki Kaisha: *See*—
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.

Kaplan, Jean-Pierre; and Kyburz, Emilio, to Hoffmann-La Roche Inc. Process for benzothiepins. 3,811,026, Cl. 4-20-72.

Kaplan, Joseph, to Machine Components Corporation. Multidirectional joy stick type lever actuated switches. 3,811,018, Cl. 200-6.00a.

Karlson, Harald E.: *See*—
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.

Karman, Harvey, to Medical Concepts, Inc. Abortifacient. 3,810,456, Cl. 128-1.00r.

Karp, Arthur, to Stanford Research Institute. Electromagnetic resonator with electronic tuning. 3,811,101, Cl. 334-42.000.

Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., to United States of America, Army. Continuous fiber reinforcement, cross-ply test specimen. 3,810,803, Cl. 156-190.000.

Kartinen, Ernest Orval, to Signal Oil and Gas Company. Centrifugal separator for three phase mixture. 3,810,347, Cl. 55-45.000.

Kaspers, Helmut: *See*—
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.

Katagiri, Shinjiro; and Tonomura, Akira, to Hitachi, Ltd. Electron gun device of field emission type. 3,811,059, Cl. 313-82.000.

Kaufman, Ralph O., Sr., to Cyclops Corporation, Universal-Cyclops Specialty Steel Division. Method for manufacturing hollow members. 3,810,286, Cl. 29-156.80h.

Kaufmann, Karl Josef: *See*—
Polson, Alfred; and Kaufmann, Karl Josef, 3,810,576.

Kawasaki, Masaru, to Yamaha Hatsudoki Kabushiki Kaisha. Intake silencer for an internal combustion engine. 3,810,526, Cl. 181-35.00a.

Kawiecki, Chester J., to Joslyn Mfg. and Supply Co. Spark-gap device. 3,811,064, Cl. 313-325.000.

Keever, Joseph M.; and Zisa, William J., to Westinghouse Electric Corporation. Temperature compensated magnetic bearing assembly for an induction meter. 3,810,683, Cl. 308-10.000.

Kekimian, Norris C., to Hekimian Laboratories, Inc. Logarithmic converter. 3,811,088, Cl. 324-132.000.

Kempe, Horst: *See*—
Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, 3,810,568.

Kendall, Don Leslie, to Texas Instruments, Incorporated. Process for the fabrication of semiconductor materials. 3,810,791, Cl. 148-1.500.

Kennametal Inc.: *See*—
Cantz, Rolf J., 3,810,298.

Kennecott Copper Corporation: *See*—
Skarbo, Roald R.; and Miguel, Antonio H., 3,810,971.

Kennedy, John Frederick: *See*—
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.

Kenney, Michael J., to Dunlap Limited. Conveyor belts. 3,810,278, Cl. 24-31.00w.

Kent, George, Limited: *See*—
Cousins, Terence; and Zanker, Klaus Joachim, 3,810,388.

KEURO Maschinenbau Gesellschaft mit beschrankter Haftung & Co. Kommanditgesellschaft: *See*—
Stolzer, Paul, 3,810,404.

Khovrin, Boris Vladimirovich: *See*—
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kiba, Jack Y., to Magenta Corporation. Mounting for identification badge. 3,810,321, Cl. 40-1.500.

Kidde, Walter, & Company, Inc.: *See*—
Greenwald, Harry, 3,810,396.

Kierstead, Richard Wightman: *See*—
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.

Kiessling, Werner: *See*—
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, 3,810,594.

Kightlinger, Ronald J.; and Goodrich, Robert S. Animal food bowl and cover therefor. 3,810,446, Cl. 119-61.000.

Kim, Gwan: *See*—
Maselli, James Michael; and Kim, Gwan, 3,810,921.

Kimberly-Clark Corporation: *See*—
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.

Kimble, Victor W.: *See*—
Bylund, Don M.; and Kimble, Victor W., 3,810,810.

Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, to Kanegafuchi Boseki Kabushiki Kaisha. Anti-electrostic polyamides containing a urethane derivative of a polyether. 3,810,956, Cl. 260-857.00r.

Kimura, Kikuo: *See*—
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.

King, Alfred Douglas, Jr.: *See*—
Jurd, Leonard; and King, Alfred Douglas, Jr., 3,810,990.

King, William M., to Aerojet-General Corporation. Aluminum hydride preparation. 3,810,974, Cl. 423-645.000.

Kiniski, Zane Chadrick, to Unit 1. Rotary-to-reciprocating device. 3,811,058, Cl. 310-80.000.

Kirilanko, Anatoly Vasilievich: *See*—
Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich, 3,810,377.

Kirilenko, Nilla Sergeevne: *See*—
Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich, 3,810,377.

Kirth, Grainger Dan. Method of making lampshade. 3,810,295, Cl. 29-445.000.

Kisfaludy, Lajos: *See*—
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, to Bayer Aktiengesellschaft. Pesticidal compositions and methods of killing pests using O-alkyl-S-(β-alkoxyethyl)-S-(alkoxy or phenoxy-alkyl) phosphoro dithiolates. 3,810,983, Cl. 424-217.000.

Kiss, Sandor Gyorgy. Dredge and sludge alembic. 3,810,549, Cl. 210-297.000.

Kita, Yuzo: *See*—
Inose, Fumiyuki; and Kita, Yuzo, 3,811,110.

Kitamura, Sadafumi: *See*—
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.

Kitano, Akira, to Nippondenso Co., Ltd. Digital data corrector. 3,811,037, Cl. 235-152.000.

Kitsuda, Yoshihiro: *See*—
Doi, Kazuo; and Kitsuda, Yoshihiro, 3,810,854.

Klamp, Paul. Subfloor conveyor tow truck. 3,810,428, Cl. 104-172.0bt.

Klarcrete Limited: *See*—
Clarke, Ronald Albert William, 3,810,676.

Kleen, Bergert G.; and Lamoureux, William R., to International Business Machines Corporation. Solid state gas panel display circuits with noninductive solid state insolation between low level logic and high level drive signal functions. 3,811,124, Cl. 340-24.00m.

Klein, Donald R.; and Read, Fredrick C., to Sheller-Globe Corporation. Remotely controlled day-night rear view mirror. 3,810,690, Cl. 350-282.000.

Kletecka, George; and Smith, Peter D., to Goodrich, B. F., Company, The. Alkylhydroxyphenylcarboalkoxy-substituted phthalimide. 3,810,912, Cl. 260-326.00a.

Klimkovsky, Bronislav Mecheslavovich: *See*—
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.

Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., to Owens-Corning Fiberglas Corporation. Apparatus for winding thermoplastic strands. 3,810,742, Cl. 65-11.00w.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See*—
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.

Klund, Robert N.; and Sorenson, Merle H., to Delkor Industries, Inc. Stamp applicating machine. 3,810,407, Cl. 83-285.000.

Knapsack Aktiengesellschaft: *See*—
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Kneller, Klaus: *See*—
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.

Knott, Edward B.: *See*—
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.

Kobayashi, Hidetaka, to Aikoh Co., Ltd. Molding for use in steel ingot making by bottom pouring and method of making steel ingot. 3,810,506, Cl. 164-13.00b.

Kobayashi, Takanori: *See*—
Yokoyama, Masahiro; and Kobayashi, Takanori, 3,810,438.

Kobayashi, Yoshikazu: *See*—
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.

Koch, Christian, to Siemens Aktiengesellschaft. Method and apparatus for flameless combustion of gaseous or vaporous fuel-air mixtures. 3,810,732, Cl. 431-7.000.

Koch, Josef: *See*—
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Koehler, Max; deceased. Method of making valve seat rings from a mixture of C, Pb and a pre-alloy of Fe-Co-Ni-Mo by powder metallurgy. 3,810,756, Cl. 75-214.000.

Koenig, Claus. Covering mask. 3,810,812, Cl. 161-1.000.

Koenig, Karl-Heinz: *See—*
Fischer, Adolf; Koenig, Karl-Heinz; and Reichenedcr, Franz, 3,810,751.

Kohn, Gustave K.: *See—*
Brown, Melancthon S., 3,810,928.

Kohno, Yasumasa: *See—*
Yamaguchi, Michio; and Kohno, Yasumasa, 3,810,523.

Koivunen, Erkki A.: *See—*
Demers, Theodore E.; and Koivunen, Erkki A., 3,810,682.
Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.

Kommanditbolaget United Stirling (Sweden) AB & Co.: *See—*
Hakansson, Sven Anders Samuel, 3,810,634.

Koper, Franz-Josef. Multiyear calendar. 3,810,325, Cl. 40-335.000.

Koppers Company, Inc.: *See—*
Gormley, William T.; and Russ, Muchcre C., 3,810,960.
Hatton, John A., Jr.; and McNally, John S., 3,810,863.

Korczykowski, Leonard Ernest: *See—*
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.

Kornhauser, Murray, to Safety Consultants. Energy absorbing bumper system. 3,810,668, Cl. 293-71.00p.

Koshimura, Saburo: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.

Kostjuchenko, Mikhail Ivanovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kouwenhoven, Herman Wouter: *See—*
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, 3,810,830.

Kovalenko, Jury Nikolaevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich. Apparatus for balancing inertial forces of reiprocating masses of tube cold rolling mill stand. 3,810,378, Cl. 72-214.000.

Kraftco Corporation: *See—*
Chien, Hwei-Chiu, 3,810,997.

Kramer, John J. Foldable sawhorse. 3,810,527, Cl. 182-155.000.

Kranz, Eckart; and Bock, Marianne; deceased (by Bock, Hermann; executor), to Bayer Aktiengesellschaft. Derivative of pyrazolo[1,5-c]pyrimidines and process for their preparation. 3,810,894, Cl. 260-256.40f.

Kraus, Charles E., to Tracotr, Inc. Toric transmission with hydraulic controls and roller damping means. 3,810,398, Cl. 74-200.000.

Kristiansen, Aage, to Mo Och Domsjo Aktiebolag. Process for preparing free-flowing alpha-olefin sulfonate powders while hydrolyzing sultones. 3,810,847, Cl. 252-536.000.

Krumm, Eugene D.: *See—*
Bakker, Lubertus; and Krumm, Eugene D., 3,810,555.

Krummenacher, Leo. Apparatus for pedicure. 3,810,463, Cl. 128-56.000.

Krupp, Fried., Huttenwerke A.G., Firma: *See—*
Heller, Wilhelm, 3,810,793.

Krutyansky, Mikhail Mironovich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Krysl, Melvin F. Hand-crank toy winch. 3,810,593, Cl. 242-86.500.

Kuceski, Vincent P., to Hall, C. P., Company, The. Purification of carboxylic acids. 3,810,937, Cl. 260-485.00r.

Kudamatsu, Akio: *See—*
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.

Kun, Leslie C., to Union Carbide Corporation. Cross flow heat exchanger. 3,810,509, Cl. 165-148.000.

Kunishima, Mamoru: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.

Kuntz, Emile: *See—*
Chapurlat, Robert; and Kuntz, Emile, 3,810,848.
Chapurlat, Robert; and Kuntz, Emile, 3,810,872.
Chapurlat, Robert; and Kuntz, Emile, 3,810,873.
Chapurlat, Robert; and Kuntz, Emile, 3,810,888.

Kusz, Raymond S.; and Bassoff, Arthur B., to Lear Siegler, Inc. Progressive pot broach systems. 3,810,413, Cl. 90-10.000.

Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, to Agfa-Gevaert Aktiengesellschaft. Apparatus for transporting webs of photosensitive material through developing machines or the like. 3,810,568, Cl. 226-92.000.

Kyburz, Emilio: *See—*
Kaplan, Jean-Pierre; and Kyburz, Emilio, 3,811,026.

Kyser, Smith, to Aircraft Specialties, Inc. Combination straight slotted and cross slotted screw starter. 3,810,502, Cl. 145-50.00e.

La Fermeture Ailee: *See—*
Lacam, Guy S. P., 3,810,437.

La Mers, Herbert. Plastic melting and feeding machine. 3,810,563, Cl. 222-146.00r.

La Telemecanique Electrique: *See—*
Mongredien, Emile R., 3,810,307.

Labbe, Francis Auguste Maurice, to Molins Limited. Cigarette making machines. 3,810,475, Cl. 131-84.00b.

Laboratoires J. Berthier: *See—*
Meunier, Henry E.; and Eymard, Pierre L., 3,810,942.

Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, to Societe d'Etudes et d'Applications Biochimiques; and Ugine-Kuhlmann. Urate oxidase and process for the production thereof. 3,810,820, Cl. 195-62.000.

Lacam, Guy S. P., to La Fermeture Ailee. Device for guiding and putting under tension a band of a sliding fastener. 3,810,437, Cl. 112-152.000.

Ladouceur, Harold A., to Multifastener Corporation. Installation die and nut method of installing a nut in a panel. 3,810,291, Cl. 29-243.530.

Lagergren, Hans Ragnar: *See—*
Eriksson, Jan Christer; and Lagergren, Hans Ragnar, 3,810,781.

Lahlou, Bachir. Student teaching system and the like and related method. 3,810,316, Cl. 35-8.00a.

Lambert, Benoit. Stirrer for cooking vessels. 3,810,605, Cl. 259-108.000.

Lambert, John W. Pulsating syringe. 3,810,465, Cl. 128-66.000.

Lamoureux, William R.: *See—*
Kleen, Bergert G.; and Lamoureux, William R., 3,811,124.

Lampe, Hans Hermann: *See—*
Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.

Lang, William D.: *See—*
White, Edward L.; Schwarcz, Joseph; and Lang, William D., 3,810,864.

Lang, Zsuzsanna: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Langlois, Claude: *See—*
Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.

Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, to Agfa-Gevaert N.V. Photochromic composition containing polyhalogenated hydrocarbon, spiropyran compound and poly-N-vinylcarbazole and the use thereof. 3,810,762, Cl. 96-48.00r.

Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, to Agfa-Gevaert N.V. Photochromic composition containing polyhalogenated hydrocarbon, spiropyran compound and ZnO or Pb(II) oxide and the use thereof. 3,810,763, Cl. 96-48.00r.

Larson, Carlen E.: *See—*
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.

Lartigue, Gerard; and Rousselet, Andre, to Hoffmann-La Roche Inc. Apparatus for transferring liquids. 3,810,720, Cl. 417-429.000.

Lary, Edmund C.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.

Lauritsen, William Eger Nyboe. Shedding motion of healds for Jacquard weaving machines. 3,810,492, Cl. 139-59.000.

Lavedan, Louis J., Jr.: *See—*
Mason, Robert J.; and Lavedan, Louis J., Jr., 3,811,099.

Lazzarini, Louis P., 1/2 to Hanscom, Genevieve I., (formerly Magnuson, Genevieve I.), 1/2 to Hanscom, Genevieve I., Magnuson, Robert and Thompson, Lois J.; formerly Duggan, Lois J., trustees of the estate of Magnuson, Roy M. Peeling machine and method. 3,81,000, Cl. 426-483.000.

Le Bouchage Mecanique (L.B.M.): *See—*
Coursaut, Henri, 3,810,556.

Lear Siegler, Inc.: *See—*
Kusz, Raymond S.; and Bassoff, Arthur B., 3,810,413.

Lechner, Ernst-Friedrich, to Siemens Aktiengesellschaft. Device for testing multiple electric circuit selector switches. 3,811,086, Cl. 324-28.00r.

Lecuru, Jacques; and Cassa, Jean. Cellular trays for cultivating and displaying plants. 3,810,329, Cl. 47-34.130.

Lee, John M., to Dow Chemical Company, The. Production of cyanuric acid. 3,810,891, Cl. 260-248.00a.

Lee, Raymond, Organization, Inc., The: *See—*
Bender, Leroy E., 3,810,598.
Cline, William, 3,810,557.
Madore, Roger J., 3,810,536.
Miller, Kenneth W., 3,810,615.
Reid, Claude L., 3,810,669.
Sheeler, William, 3,810,464.
Turi, Dino P., 3,810,670.

Lee Raymond, Organization,Inc., The: *See—*

Weimer, Howard A., Sr., 3,810,658.
Lee, Robert D., to United States of America, National Aeronautics and Space Administration. Bio-isolated DC operational amplifier. 3,811,094, Cl. 330-59.000.
Lee, Saishek. Video multiplex system. 3,811,008, Cl. 178-6.60a.
Leggetter, Brian Ernest: *See*—
Davidson, Hugh; and Leggetter, Brian Ernest, 3,810,901.
Leibach, Heinrich, to Motoren- und Turbinen-Union Munchen GmbH. Gas generator with selectively connectible turbine system. 3,810,360, Cl. 60-229.000.
Leimgruber, Willy: *See*—
Mohacsi, Ernest; and Leimgruber, Willy, 3,810,899.
Leimgruber, Willy; and Weigele, Manfred, to Hoffmann-La Roche Inc. Process for producing malononitrile. 3,810,935, Cl. 260-465.80r.
Lemay, Richard A.; and DeVoy, David D., to Honeywell Information Systems, Inc. Data processing system having an improved overlap instruction fetch and instruction execution feature. 3,811,114, Cl. 340-172.500.
Lemmond, Everett C.; and Edwards, James W. Box capping machine. 3,810,345, Cl. 53-306.000.
Lemper, Anthony L.: *See*—
Takahashi, Akio; and Lemper, Anthony L., 3,810,958.
Lensky, Alexandr Nikolaevich: *See*—
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Lenz, George R., to Searle, G. D., & Co. 21-Dialkylamino-20-methylpregna-4,17(20)-dien-3-ones and congeners. 3,810,926, Cl. 260-397.100.
Leston and Burpee, Ltd.: *See*—
Allen, Francis Edwin; and McGuire, James Daniel, 3,810,409.
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., to Stauffer Chemical Company. Control of confused flour beetles using geranyl phenyl ethers. 3,810,989, Cl. 424-278.000.
Lethen, Robert, to Otto Junker GmbH. Tiltable induction furnace for molten metals. 3,811,001, Cl. 13-27.000.
LeVan Electronics, Inc.: *See*—
Levick, Herbert, 3,811,046.
Levick, Herbert, to LeVan Electronics, Inc. Light sensitive security system. 3,811,046, Cl. 250-206.000.
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., to National Starch and Chemical Corporation. Hair fixing composition and process containing a solid terpolymer. 3,810,977, Cl. 424-47.000.
Levy, David. Data-processing system for determining gains and losses from bets. 3,810,627, Cl. 273-138.00a.
Lewin, Nathan: *See*—
Rutner, Herman; Rapun, Raul; and Lewin, Nathan, 3,810,886.
Lewis, Dan, Jr.; and Von Alven, Raymond D., to Cutter Laboratories, Inc. Variable volume container for fluids. 3,810,503, Cl. 150-8.000.
Liang, Chi-Dean: *See*—
Baran, John S.; and Liang, Chi-Dean, 3,810,927.
Libingston, Graydon C., to Wolf & Vine, Inc. Manikin construction. 3,810,565, Cl. 223-68.000.
Lichman, Nikolai Iosifovich: *See*—
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.
Licke, David R., to Sperry Rand Corporation. Shaver cutter head. 3,810,306, Cl. 30-43.820.
Lien, Erling I., to Varian Associates. Velocity modulation microwave tube employing a harmonic prebuncher for improved efficiency. 3,811,065, Cl. 315-5.430.
Lijewski, Robert P.: *See*—
Weinfurt, Phillip T.; and Lijewski, Robert P., 3,811,040.
Linde Aktiengesellschaft: *See*—
Hilderbrandt, Ullrich, 3,810,491.
Lindgren, Boris, to Nyby Bruks Aktiebolag. Method for cleaning (degreasing) web material. 3,810,786, Cl. 134-9.000.
Lindholm, Alfons Seth Mikael, to Aktiebolaget Tudor. Reference electrode. 3,810,828, Cl. 204-195.00f.
Lindlof, James A.: *See*—
Tungseth, Barry F.; and Lindlof, James A., 3,810,707.
Link, Donald F. Device for removing articles from a shaft. 3,810,294, Cl. 29-261.000.
Litvin, Anatoly Vasilievich: *See*—
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Lochmann, Robert L.: *See*—
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.
Lockheed Electronics Company, Inc.: *See*—
Bach, Richard R., 3,811,025.
Lodge, Hilmer G., to Conflow Irrigation Systems. Irrigation system. 3,810,582, Cl. 239-542.000.
Lodi, Frank, to Sani-Seat, Inc. Hygienic apparatus. 3,810,260, Cl. 4-7.000.
Logicon, Inc.: *See*—
Seitz, Neal B., 3,811,014.
Lohse, Friedrich: *See*—
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.
London, Eugene J.; and Boncher, John L., Jr. Freezer unloading system for hamburger patties. 3,810,554, Cl. 214-6.00d.
Long, David T., to United States of America, Navy. Intrusion detection apparatus. 3,811,010, Cl. 178-6.800.
Longarzo, Roland P., to Ibex Precision Products, Inc. Ball, socket and clip device. 3,810,550, Cl. 211-69.600.
Lonza Ltd.: *See*—
O'Murchu, Colm, 3,810,934.
Low, Miklos: *See*—
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.
Lowe, Bernice E. Convertible bingo card holder. 3,810,323, Cl. 40-124.000.
Lowe, Jack Graham, to Burton Delingpole & Company Limited. Scaffold tube coupler. 3,810,704, Cl. 403-385.000.
Lowrance, Larry D. Trailer hitch. 3,810,661, Cl. 280-415.00b.
Lox Equipment Company: *See*—
Hampton, Robert S.; and Eifel, Paul J., 3,810,365.
Lucas Aerospace Limited: *See*—
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.
Lucas, Joseph, (Electrical) Limited: *See*—
Sutton, Christopher John, 3,811,082.
Ludlow Corporation: *See*—
Bryan, Robert C., Jr.; and Price, Joseph F., 3,810,328.
Ludwick, Ralph. Hose support. 3,810,490, Cl. 138-106.000.
Luecke, Juergen, to Sandoz Ltd. Process for the production of nitriles. 3,810,903, Cl. 260-294.900.
Lumenition Limited: *See*—
Ford, Eric Harold, 3,810,448.
Lumidor Products Corporation: *See*—
Burnell, Norman; and Potruch, Robert A., 3,811,006.
Lundqvist, Bengt Olof, to AB Gustavsbergs Fibriker. Mobile purifying plant for waste water. 3,810,543, Cl. 210-152.000.
Lunk, Hans E., to Shell Oil Company. Selectively hydrogenated block copolymer-polystyrene blends. 3,810,957, Cl. 260-876.00b.
Luukkonen, Paavo O. Rotary engine with cushioning device for the partition. 3,810,724, Cl. 418-248.000.
Lygovskoi, Andrei Likyanovich: *See*—
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.
Lyle, Phra D.: *See*—
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
M & T Chemicals Inc.: *See*—
Passal, Frank, 3,810,917.
MacDonald, William Ronald, to National Research development Corporation. Angular accelerometers. 3,810,393, Cl. 73-505.000.
MacDougall, John A.: *See*—
Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., 3,810,564.
Machida, Takayasu: *See*—
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Machine Components Corporation: *See*—
Kaplan, Joseph, 3,811,018.
MacLean-Fogg Lock Nut Co.: *See*—
Grube, William L., 3,810,290.
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., to General Motors Corporation. Solenoid latched diaphragm fuel shut-off valve assembly. 3,810,489, Cl. 137-495.000.
MacManus, John. Whipping apparatus. 3,810,415, Cl. 99-60.000.
Madore, Roger J., 20% to Lee, Raymond, Organization, Inc., The. Typewriter roll label holder. 3,810,536, Cl. 197-133.00r.
Maeda, Tsuneo: *See*—
Iwata, Masayoshi; and Maeda, Tsuneo, 3,810,520.
Magelic, Orville Leonard: *See*—
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.
Magenta Corporation: *See*—
Kiba, Jack Y., 3,810,321.
Magnesium Elektron Limited: *See*—
McAlpine, Ian; and Clough, David John, 3,810,852.
Magnetic Laboratories Inc.: *See*—
Turner, Norman E.; and McGonigal, James J., 3,811,045.
Magnuson, Robert: *See*—
Lazzarini, Louis P., 3,811,000.
Mahlmann, James P.: *See*—
Balling, T. Thomas; and Mahlmann, James P., 3,810,999.
Mahoney, Ralph P. Dispensing container enabling a coil of a resilient, edged metal band to be formed therein. 3,810,588, Cl. 242-5.000.
Major S.p.A.: *See*—
Freccero, Renato; and Dolei, Silvano, 3,810,701.
Malcolm, George David. Tape dispenser attachment. 3,810,567, Cl. 225-67.000.

Malinovsky, Vladimir Sergeevich: *See*—
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Malkin, Arkady Semenovich: *See*—
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.

Malkin, Bruce, to Electro-Speed Tool Corporation. Electric nailer. 3,810,572, Cl. 227-132.000.

Malmendier, Joseph W.: *See*—
Dumbaugh, William H., Jr.; and Malmendier, Joseph W., 3,810,744.

Maltsev, Lev Alexandrovich: *See*—
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Manhattan College: *See*—
Dar Conte, John M., 3,810,363.

Mani, Inder, to Dow Chemical Company, The. Resin and process for curing by exposing to ionizing radiation a mixture of a vinyl ester resin, an alkenyl aromatic monomer and a 2-oxazoline or guanidine. 3,810,825, Cl. 204-159.150.

Mani, Inder, to Dow Chemical Company, The. Radiation polymerizable vinyl ester resins containing 2-oxazoline and guanidine additives. 3,810,826, Cl. 204-159.150.

Manney, Charles J.: *See*—
Schreyer, Kenneth D.; and Manney, Charles J., 3,810,359.

Marcil, Jean Pierre. Suspension damping device. 3,810,659, Cl. 280-276.000.

Marconi Company Limited, The: *See*—
Rosenbaum, Harold Matthew; and Duerden, Francis, 3,810,317.

Marcor Housing Systems, Incorporated: *See*—
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.

Marforio, Nerino, to S.p.A. Virginio Rimoldi & C. Apparatus for forming patterned seams in fabric workpieces. 3,810,436, Cl. 112-121.150.

Marr, Peter A.: *See*—
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.

Martchenke, Earl J. Ski pole with camera mounting means 280/011.37e. 3,810,647, Cl. 7-20-72.

Martin Marietta Corporation: *See*—
Holst, Dennis W., 3,811,129.

Martin, William W.; Schell, Donald H.; and Taub, James M., to United States of America, Atomic Energy Commission. Method of making a carbide-graphite composite nuclear fuel. 3,810,962, Cl. 264-.500.

Martini, Leonard J., to United States of America, Navy. Cooling water valve. 3,810,484, Cl. 137-70.000.

Masaki, Kenji, to Nissan Motor Company, Limited. Carburetter output control device. 3,810,606, Cl. 261-39.00a.

Maschinenfabrik Goebel GmbH: *See*—
Herd, Josef; and Jakob, Hans, 3,810,809.

Mascelli, James Michael; and Kim, Gwan, to Grace, W. R., & Co. Catalytic process for the oxidation of orthoxylene to phthalic anhydride. 3,810,921, Cl. 260-346.400.

Mason, Robert J.; and Lavedan, Louis J., Jr., to United States of America, Navy, mesne. Means of securing ferrimagnetic core in a microwave phaser. 3,811,099, Cl. 333-24.100.

Masonite Corporation: *See*—
Pittman, Raymond H., 3,810,774.

Massie, Stephen N., to Universal Oil Products Company. Molybdenum oxalate-anion exchange resin catalyst. 3,810,849, Cl. 260-2.10e.

Massie, Stephen N., to Universal Oil Products Company. Synthesis of piperazines. 3,810,895, Cl. 260-268.0sy.

Masuyama, Takeshi: *See*—
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.

Matherne, Carrol J. Compact tubing testing unit. 3,810,383, Cl. 73-40.50r.

Mathis, Ronald D.; and Dix, James S., to Phillips Petroleum Company. Char-forming, flame retardant polyolefin composition. 3,810,862, Cl. 260-42.450.

Matossi, Dario: *See*—
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.

Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, to Banyu Pharmaceutical Co., Ltd. and Hidaka, Hiroyoshi. Pyridine bis(dithiocarbamate)derivatives and preparation thereof. 3,810,900, Cl. 260-293.690.

Matsumoto, Seiji; and Takahashi, Isoji, to Xerox Corporation. Electrophotographic charging apparatus. 3,811,048, Cl. 250-326.000.

Matsumoto, Yoshi; and Tashiro, Tsuneo, to Tokyo Shibaura Electric Co., Ltd. Color electrostatic copying apparatus. 3,810,693, Cl. 355-4.000.

Matsuo, Chickau: *See*—
Grimm, Henry B.; Matsuo, Chickau; and Wilborn, Donald C., 3,810,706.

Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, to Matsushita Electric Industrial Co., Ltd. Voltage-nonlinear resistors. 3,811,103, Cl. 338-20.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.
Nagaoka, Tadashi, 3,810,570.
Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, 3,811,113.
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.

Matsushita Electric Industrial Company, Limited: *See*—
Shiga, Kazumasa, 3,811,075.

Matsushita, Teruko, 50% to Ito, Yoshie. Novelty type light device. 3,811,041, Cl. 240-2.00r.

Matsuzaki, Meiki: *See*—
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.

Matthews, Russell B., to Johnson Service Company. Bulb modulating gas valve. 3,810,578, Cl. 236-80.000.

Matthewson, Ian: *See*—
Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, 3,810,368.

Matty, Thomas C., to Westinghouse Electric Corporation. Method of and apparatus for producing a vehicle movement breaking signal in response to sensing the direction of travel of a vehicle. 3,810,681, Cl. 303-20.000.

Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, to Japan Atomic Energy Research Institute and Nakajima Industry Company Limited. Glass processing lathe. 3,810,748, Cl. 65-271.000.

Maurice, George T.: *See*—
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.

Max-Planck-Gesellschaft zur Forderung der Wissenchafter e.V.: *See*—
Gerisch, Gunther, 3,810,822.

Maynard, David Payne: *See*—
Weaver, John; and Maynard, David Payne, 3,810,709.

Maynard, F. Charles, Jr.: *See*—
Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., 3,810,267.

Maytag Company, The: *See*—
Smtih, Thomas R.; and Faust, Stewart W., 3,810,480.

Mayville Metal Products Co.: *See*—
Merkl, Lloyd D., 3,810,561.

McAlpine, Ian; and Clough, David John, to Magnesium Elektron Limited. Thixotropic aqueous dispersions of polymers and copolymers derived from ethylenically unsaturated monomers. 3,810,852, Cl. 260-17.00r.

McAshan, Robert Burton, Jr. Ice distribution and level control. 3,810,386, Cl. 62-137.000.

McBride, Roby C.; and Owens, Howard, to TPI Corporation. Duct electrical heater unit. 3,811,031, Cl. 219-374.000.

McCahon, John O.; and Byrne, William J., to Smyth Manufacturing Company, The. Method and apparatus for handling sheet materials, signatures and the like. 3,810,612, Cl. 271-11.000.

McCormick, James B., to American Health, Inc. Disposable pulmonary function kit. 3,810,461, Cl. 128-2.080.

McCormick, Walter R., to NL Industries, Inc. Process for scrubbing hydrogen chloride from waste gases and selective recovery of anhydrous magnesium chloride. 3,810,970, Cl. 423-498.000.

McCoy, Wallace W. Random honeycomb structure. 3,810,798, Cl. 156-62.200.

McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., to Marcor Housing Systems, Incorporated. Fire barrer system for multi-family dwellings. 3,810,335, Cl. 52-79.000.

McCurdy, Richard H.; and Connelly, Lawrence W., to Sitelines, Inc. Pivotally mounted hermetically sealed window unit. 3,810,331, Cl. 49-401.000.

McDonnell Douglas Corporation: *See*—
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.
Welhart, Erwin K.; Voss, David L.; and Harrell, John F., 3,810,815.

McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 1/2 to McDonnell Douglas Corporation and 1/2 to Erdman, Donald C., Company, Inc. Transducer means for ultrasonic extensometer. 3,810,385, Cl. 73-71.50u.

McGonigal, James J.: *See*—
Turner, Norman E.; and McGonigal, James J., 3,811,045.

McGrew, David P., 37.5% to Castleman, Curtis H. Viscosity control additive for water beds and other aqueous-filled furniture. 3,810,265, Cl. 5-348.9wb.

McGuire, James Daniel: *See*—
Allen, Francis Edwin; and McGuire, James Daniel, 3,810,409.

McNally, John S.: *See*—
Hatton, John A., Jr.; and McNally, John S., 3,810,863.

McNemar, Edward R. Mystery game with balanced pocketed container. 3,810,624, Cl. 273-102.10c.

Meador, Thomas G., Jr., to United States of America, National Aeronautics and Space Administration. Light shield and cooling apparatus. 3,811,044, Cl. 240-47.000.

Medical Concepts, Inc.: *See*—

Karman, Harvey, 3,810,456.

Medicotech Company: *See—*
Szpur, Roman, 3,810,462.

Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, to Richter Gedeon Vegyeszeti Gyar Rt. Process for the preparation of biologically active polypeptides. 3,810,880, Cl. 260-112.500.

Meerson, Grigory Izrailevich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Meginnis, George B.: *See—*
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.

Meier, Werner: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.

Menn, Julius J.: *See—*
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.

Menn, Julius Joel, to Stauffer Chemical Company. Anthelmintic bisthioureido benzene derivative. 3,810,992, Cl. 424-300.000.

Merck & Co., Inc.: *See—*
Dalhuisen, Albert J.; and Deis, William H., 3,810,856.
Saari, Walfred S., 3,810,987.

Merkl, Lloyd D., to Mayville Metal Products Co. Vending machine delivery apparatus. 3,810,561, Cl. 221-201.000.

Merrell, Kenneth C., to Robertshaw Controls Company. Capacitance responsive detector system. 3,811,051, Cl. 307-118.000.

Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, to FMC Corporation. Trichloroisocyanuric acid manufacture. 3,810,892, Cl. 260-248.00c.

Metz, Anthony B. Bumper jack. 3,810,603, Cl. 254-100.000.

Meunier, Henry E.; and Eymard, Pierre L., to Laboratoires J. Berthier. Acetamido naphthyl or acetophenone compounds and derivatives thereof. 3,810,942, Cl. 260-562.00b.

Meussdoerffer, Johann Nikolaus; and Niederprum, Hans, to Bayer Aktiengesellschaft. Catalytic production of 1,1-difluoroethane. 3,810,948, Cl. 260-653.600.

Meyer, Frieda Anna: *See—*
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.

Meyer, Friedrich J.; deceased (by Meyer, Frieda Anna; heiress); Kaspers, Helmut; and Scheinpflug, Hans, to Bayer Aktiengesellschaft. 1-Aldoxy- or 1-alkylthio-carbonyl-2-thienyl-(2)-benzimidazoles. 3,810,910, Cl. 260-309.200.

Micchelli, Albert L.: *See—*
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.

Michelet, Robert Wilson; and Silverman, Edward Jerome, to Bell Telephone Laboratories, Incorporated. Interlocked power supply transfer circuit to inhibit secondary transfer after a primary transfer. 3,811,050, Cl. 307-64.000.

Micromatic Industries, Inc.: *See—*
Gillette, Robert H., 3,810,333.

Midland-Ross Corporation: *See—*
Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., 3,810,564.

Miguel, Antonio H.: *See—*
Skarbo, Roald R.; and Miguel, Antonio H., 3,810,971.

Mikofalvy, Bela K., to Goodrich, B. F., Company, The. Thickenable alkyl acrylate latices. 3,810,859, Cl. 260-29.6rw.

Milchem Incorporated: *See—*
Browning, William C.; and Chesser, Billy G., 3,810,882.

Miles, Gilbert Dwayne, to Colgate-Palmolive Company. Toothbrush having antimicrobial means. 3,810,479, Cl. 132-84.000.

Miles Laboratories, Inc.: *See—*
Wiley, Richard H., 3,810,923.

Miller, Charlie D., to Carrier Corporation. Tube severing device. 3,810,402, Cl. 82-82.000.

Miller, Kenneth W., 20% to Lee, Raymond, Organization, Inc., The. Educational game: Space station. 3,810,615, Cl. 273-1.00e.

Miller, Leonard R.: *See—*
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., 3,810,976.

Miller, O. Neal: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.

Mills, Truett P. Hosel-less wood type golf club. 3,810,621, Cl. 273-80.200.

Miltenberger, Robert S., to National Steel Corporation. Process for casting molten aluminum killed steel continuously and the solidified steel shaped thus produced. 3,810,753, Cl. 75-49.000.

Minghella, Paul F., to United States of America, Army, mesne. Automatic positioning device exhibiting high accuracy and repeatability. 3,811,083, Cl. 318-466.000.

Minnesota Mining and Manufacturing Company: *See—*
Elm, Robert A., 3,810,596.
Tungseth, Barry F.; and Lindlof, James A., 3,810,707.

Miram, Oleg V. Form for use in building construction. 3,810,601, Cl. 249-189.000.

Miron, Jerry: *See—*
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3,810,871.

Mitsch, Ronald A.; and Zollinger, Joseph La Mar. Polymers prepared from poly(perfluoroalkylene oxide) compounds. 3,810,874, Cl. 260-75.00h.

Mitsubishi Denki Kabushiki Kaisha: *See—*
Yokoyama, Masahiro; and Kobayashi, Takanori, 3,810,438.

Miyake, Yoshiaki, to Fuji Photo Film Co., Ltd. Method and means for moving a shiftable holder for a roll core or the like. 3,810,590, Cl. 242-68.400.

Miyano, Masateru, to Searle, G. D., & Co. 2-Formyl 3-oxygenated 5-oxocyclopentancheptanoic acids, esters corresponding and derivatives. 3,810,936, Cl. 260-468.00k.

Miyazaki, Tsutomu; and Suzuki, Yoshihisa, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Automatic yarn piecing apparatus for continuous ringless spinning machine and method of using same. 3,810,352, Cl. 57-34.00r.

Mizuno, Yikio, to Nissan Motor Company, Limited. Tension regulating apparatus for loom. 3,810,493, Cl. 139-110.000.

Mizushima, Yoshihiko: *See—*
Suzuki, Toshimasa; and Mizushima, Yoshihiko, 3,811,074.

Mo Och Domsjo Aktiebolag: *See—*
Kristiansen, Aage, 3,810,847.

Mobil Oil Corporation: *See—*
Fitch, John L.; and Strubhar, Malcolm K., 3,810,510.

Model, Ernst; von der Crone, Jose; and Pugin, Andre, to Ciba-Geigy Corporation. Iminoisoindolinone dyestuffs and process for their manufacture. 3,810,889, Cl. 260-240.00g.

Modern Faucet Manufacturing Company: *See—*
Rauh, Jack, 3,810,580.

Mohacsi, Ernest; and Leimgruber, Willy, to Hoffmann-La Roche Inc. 2-Hydroxy-N-substituted-morphinan derivatives. 3,810,899, Cl. 260-285.000.

Molins Limited: *See—*
Labbe, Francis Auguste Maurice, 3,810,475.

Molnar, James V.: *See—*
Pickett, Charles G.; and Molnar, James V., 3,810,779.

Monarch Marking Systems, Inc.: *See—*
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., 3,811,033.

Mongredien, Emile R., to La Telemecanique Electrique. Wire cutting and stripping pliers. 3,810,307, Cl. 30-90.100.

Monsanto Chemicals Limited: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.

Monsanto Company: *See—*
Munch, Ralph H., 3,811,077.
Olin, John F., 3,810,981.

Monti, Giancarlo: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.

Moodie, Donald E., to Polaroid Corporation. Device for varying light transmission employing roller-cable mechanism. 3,810,689, Cl. 350-159.000.

Moody, Roy Alleyne: *See—*
Coveney, Jack Edward; and Moody, Roy Alleyne, 3,810,288.

Moore, Glenn L. Electrical cord hatch. 3,811,004, Cl. 174-67.000.

Moore, William G.: *See—*
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.

Morduchowitz, Abraham, to Texaco Inc. Method of protecting surfaces by coating with imide-ester derivatives of ethene-maleic anhydride copolymers. 3,810,276, Cl. 117-161.00n.

Moreno, Maria F.: *See—*
Sutliff, Gloria M.; and Moreno, Maria F., 3,810,996.

Morgan, John Roderick Cromwell, to Von Meijer, Frederick William Albert. Air-cushion supported vehicles. 3,810,522, Cl. .

Morgan, Paul A., to Century Wheels, Inc. Micrometer measuring devices. 3,810,310, Cl. 33-166.000.

Morinaga Milk Industry Co., Ltd.: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

Morissette, Bertrand G.: *See—*
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.

Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, to Lucas Aerospace Limited. Turbine with lubricant tanks in centre body and housing. 3,810,528, Cl. 184-6.110.

Morris, Thomas H.; and Wu, Tao-Yuan, to Ford Motor Company. Engine spark timing system control. 3,810,452, Cl. 123-117.00a.

Morrison, Charles R., to Truck-Lite Company, Inc. License plate lamp assembly. 3,811,042, Cl. 240-7.10r.

Morrison, Thomas E.: *See—*
Studdard, Donald T.; and Morrison, Thomas E., 3,810,678.

Morse, Theodore H.: *See—*
Stahr, Richard W.; and Morse, Theodore H., 3,810,759.

Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, to Cableform Limited. Control circuits for D.C. electric motors. 3,811,080, Cl. 318-341.000.

Moser, Gottfried: *See—*
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.

Moser, Rabin, to Xerox Corporation. Heat fixing apparatus for fusible material. 3,810,735, Cl. 432-59.000.

Mosley, Fred E., to Mosley Machinery Co., Inc. Scrap feeding apparatus. 3,810,421, Cl. 100-95.000.
Mosley Machinery Co., Inc.: *See—*
Mosley, Fred E., 3,810,421.
Mosquera, Hugo O.: *See—*
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.
Moss, Gerald: *See—*
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Motoren- und Turbinen-Union Munchen GmbH: *See—*
Leibach, Heinrich, 3,810,360.
Motorola, Inc.: *See—*
Schmidt, Hans, 3,811,100.
Mousseau, Jean-Marie. Process and apparatus for winding sheet material. 3,810,589, Cl. 242-66.000.
Moyes, Martin Gerald, to Gec-Elliott Mechanical Handling Limited. Conveyors. 3,810,538, Cl. 198-127.00r.
Mueller, Richard H. Bed device. 3,810,264, Cl. 5-220.000.
Mullenbach, Guy Towns: *See—*
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, 3,810,918.
Muller, Marcel: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Multifastener Corporation: *See—*
Ladouceur, Harold A., 3,810,291.
Munch, Ralph H., to Monsanto Company. Liquid impregnated capacitor. 3,811,077, Cl. 317-258.000.
Munchbach assor. to said Walton: *See—*
Walton, Richard R.; and Munchbach, George E., 3,810,280.
Munchbach, George E.: *See—*
Walton, Richard R.; and Munchbach, George E., 3,810,280.
Mundo, Louis J. Rotatable washing brush. 3,810,271, Cl. 15-183.000.
Munson, Robert E., to Ball Brothers Research Corporation. Electrically scanned microstrip antenna. 3,811,128, Cl. 343-787.000.
Murata, Kingo, to Kabushiki Kaisha Koparu. Timer device. 3,810,357, Cl. 58-33.000.
Murenbeeld, Karel: *See—*
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.
Murphy, Lillian A. Target apparatus with ball catching means. 3,810,616, Cl. 273-26.00a.
Muskulus, Willi, to Blazer & Droll KG. Coil winding method and apparatus. 3,810,587, Cl. 242-7.030.
Myers, Robert C. Nonrotatable hub and seal means for automotive vehicle. 3,810,679, Cl. 301-108.00s.
Nagaoka, Tadashi, to Matsushita Electric Industrial Co., Ltd. Tape driving mechanism in recording and/or reproducing apparatus. 3,810,570, Cl. 226-176.000.
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, to Morinaga Milk Industry Co., Ltd. Process for preparing a cold-water soluble fat-containing powdered milk product. 3,810,765, Cl. 426-92.000.
Naik, Navnitrai Nagarji: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Nakagawa, Kanji: *See—*
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.
Nakajima, Fumio: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Nakajima Industry Company Limited: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Nakajima, Shigeji: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Nakamura, Hiromichi: *See—*
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Nakayama, Norihiko: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, to Fujitsu Limited. Plane surface discharge plasma display pancl. 3,811,061, Cl. 313-109.500.
Nakayama, Yuya: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.
Nalco Chemical Company: *See—*
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.
Narita, Toshiro: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.
National Cash Register Company, The: *See—*
Colcman, William Earl, 3,810,686.
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, 3,810,423.
Posner, John David, 3,810,433.
National Research Development Corporation: *See—*
Jason, Alfred Charles, 3,810,389.
MacDonald, William Ronald, 3,810,393.
National Starch and Chemical Corporation: *See—*
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.
Ray-Chaudhuri, Dilip K.; and Iovine, Carmine P., 3,810,939.
National Steel Corporation: *See—*
Miltenberger, Robert S., 3,810,753.
Nedelec, Lucien: *See—*
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Nedwick, Zygmund, to Athletics Devices, Inc. Quarterback football trainer with attachable target unit. 3,810,618, Cl. 273-55.00r.
Neher, Hans, to Hengstler, J., K.G. Mechanical counter. 3,811,032, Cl. 235-1.00c.
Nelms, David E., Jr. Key-mode apparatus and system. 3,810,416, Cl. 90-62.00r.
Nelson, John Frederick: *See—*
Swick, Edwin Grant; and Nelson, John Frederick, 3,810,279.
Nelson, Vaugh A.: *See—*
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., 3,810,519.
Nelsson, Nels, to United States Gypsum Company. Integral stud and bracket standard. 3,810,340, Cl. 52-729.000.
Nesbitt, John D.: *See—*
Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., 3,810,564.
Neugebauer, Gerhard, to Alexander Wiegand Armaturen- und Manometerfabrik. Miniature pressure gauge. 3,810,390, Cl. 73-418.000.
Newberry, John; and Ettie, Alan George Albert Edward, to British Insulated Callender's Cables Limited. Method of and apparatus for drawing wire. 3,810,380, Cl. 72-279.000.
Newman, June S. Shoe flexer. 3,810,270, Cl. 12-41.100.
Nicklin, Thomas, to North Western Gas Board. Purification processes. 3,810,833, Cl. 210-32.000.
Nicolau, Albert: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.
Nicolet Instruments, Inc.: *See—*
Schumann, Robert W., 3,811,125.
Nidola, Antonio: *See—*
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.
Niederprum, Hans: *See—*
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Nighan, William L., III: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, to Citizen Watch Company, Limited. Quick correction mechanism for a seconds hand of a timepiece. 3,810,354, Cl. 58-23.00d.
Nippon Telegraph and Telephone Public Corporation: *See—*
Suzuki, Toshimasa; and Mizushima, Yoshihiko, 3,811,074.
Nippondenso Co., Ltd.: *See—*
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Masaki, Kenji, 3,810,606.
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Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, 3,810,395.
Takeuchi, Yasuhisa; and Nakamura, Hiromichi, 3,811,116.
Yamaguchi, Michio; and Kohno, Yasumasa, 3,810,523.
NL Industries, Inc.: *See—*
McCormick, Walter R., 3,810,970.
Nohmura, Ryotaro. Tent. 3,810,481, Cl. 135-3.00r.
Noll, James L.: *See—*
DeBano, John, Jr.; and Noll, James L., 3,810,654.
Norman, Arthur J.; and Cobbledick, David S., to General Tire & Rubber Company, The. Flame retardant flexible polyurethane foams. 3,810,851, Cl. 260-2.5aj.
North Western Gas Board: *See—*
Nicklin, Thomas, 3,810,833.
Norton, James H., to Esso Research and Engineering Company. Nonstaining drill lubricants. 3,810,836, Cl. 252-8.50c.
Novak, Leo J. Centrifugal mechanical device. 3,810,394, Cl. 74-87.000.
N.R. Fitments Limited: *See—*
Crisp, David J.; and Ford, Roger A., 3,810,558.
Nunnink, Charles P., Jr.; and Bell, Marvin D., to Recreation Creations, Inc. Trailer vehicle anti-theft plug assembly. 3,810,664, Cl. 280-507.000.
Nussbaum, William J. Reagent-impregnated substrate for the performance of bacterial and chemical tests. 3,810,739, Cl. 23-253.0tp.
Nyby Bruks Aktiebolag: *See—*
Lindgren, Boris, 3,810,786.
Oberloier, John W. Timming apparatus. 3,810,405, Cl. 83-100.000.
Oehm, Otto, to Stahlwerke Bruninghaus Gesellschaft mit beschrankter Haftung. Apparatus for the production of elongated conical metallic articles. 3,810,375, Cl. 72-81.000.

Office National d'Etudes et de Recherches Aerospatiales (par abreviation: O.N.E.R.A.): *See—*
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Ogata, Fumimaro: *See—*
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.

Ogawa, Fumiaki: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.

Ogle, James A., to Burroughs Corporation. Drive regulation and delay control in display systems. 3,811,071, Cl. 315-169.0tv.

Ohlschlager, Hans: *See—*
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.

Ohtomo, Koichiro: *See—*
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.

Oil Mop, Inc.: *See—*
Rhodes, Herbert M., 3,810,832.

Okamoto, Hajime: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.

Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, to Okamoto, Hajime. Anti-tumor substance from hemolytic streptococci and process for producing the same using ammonium sulfate. 3,810,819, Cl. .

O'Keeffe, Terence W., to Westinghouse Electric Corporation. Signal stabilization of an alignment detection device. 3,811,069, Cl. 315-31.00r.

Oldani, John R.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.

Oligomeric phosphorodiamidate: *See—*
Haugen, Haakon, 3,810,838.

Olin Corporation: *See—*
Ford, James A.; and Butt, Sheldon H., 3,810,754.
Pivawer, Philip M., 3,810,961.
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., 3,810,287.

Olin, John F., to Monsanto Company. Insecticidal compositions and methods employing phosphorylated anilides. 3,810,981, Cl. 424-204.000.

Oliver, Gerald D.: *See—*
United States of America, National Aeronautics and Space administration, 3,810,829.

Olson, Frank Wesley, Jr.; and Roberts, Karl Hutchson, to Colgate-Palmolive Company. Shampoo composition possessing separate lotion phase. 3,810,478, Cl. 132-7.000.

Olson, George R.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.

Olsson, Gunnar Otto Hugo. Method and apparatus for anchoring a cement concrete body such as a roadway onto a base of sand, gravel, soil or similar material. 3,810,708, Cl. 404-72.000.

O'Murchu, Colm, to Lonza Ltd. Process for the production of cyanoacetylcarbamates. 3,810,934, Cl. 260-465.00d.

Onda, Mitsuo: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.

Onoda, Yoshimitsu: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.

Oomen, Joris Jan Cornelis: *See—*
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Oriental Yeast Co., Ltd.: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.

Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich; deceased (by Kirilenko, Nilla Sergeevne; administrator). Thin-walled tube cold-rolling mill. 3,810,377, Cl. 72-208.000.

Orth, Charles D., to Controls Company of America. Refrigeration valve. 3,810,366, Cl. 62-217.000.

Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., to Controls Company of America. Pressure regulator valve. 3,810,488, Cl. 137-489.300.

Ostapenko, Viktor Vladimirovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Otto Junker GmbH: *See—*
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Owens, Howard: *See—*
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Owens-Corning Fiberglas Corporation: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
Shannon, Richard F., 3,810,773.
Stalego, Charles J., 3,810,741.
Wong, Robert; and Hill, Homer G., 3,810,784.

Owens-Illinois, Inc.: *See—*
Hagedorn, Erwin C.; and Hall, Dallas P., 3,810,745.

Oxenham, James Preston, to Shell Oil Company. Apparatus for controlling a polluting liquid. 3,810,546, Cl. 210-242.000.

Pack, Kenneth E., to Continental Drilling Co. Automatic stapling system. 3,810,495, Cl. 140-93.00a.

Padgett, Clifford A.; and Slade, Lester C., to Raymond International, Inc. Lining machine. 3,810,441, Cl. 118-105.000.

Pallos, Ferenc M.: *See—*
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.

Palomo, Manuel W. Method of rendering pressurized bottle non-explosive. 3,810,343, Cl. 53-37.000.

Panduit Corporation: *See—*
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Pantke, Heinz Dieter: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.

Panycheva, Lidia Alexandrovna: *See—*
Avcryanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Papillon Etablissement: *See—*
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Park-Ohio Industries, Inc.: *See—*
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Parker, Richard G., to Goodrich, B. F., Company, The. Bis-(β-amino acrylyl thiocarboxylate) of cyclic hydrocarbon alcohols. 3,810,930, Cl. 260-455.00r.

Parker-Hannifin Corporation: *See—*
Scannell, John B., 3,810,639.

Parkison, Richard Grant, to American Standard Inc. Ceramic disk faucet. 3,810,602, Cl. 251-304.000.

Parsons, Joseph R.; and Rechter, Harold L., to Chicago Fire Brick Company. Refractory composition comprising coarse particles of clay or bauxite and carbon. 3,810,768, Cl. 106-56.000.

Pasbrig, Max. Releasable joints with male and female elements. 3,810,703, Cl. 403-324.000.

Pasha, Mohiuddin: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.

Passal, Frank, to M & T Chemicals Inc. Oxyomegasulfohydrocarbon-di-yl-coumarins. 3,810,917, Cl. 260-343.20r.

Pastoor, Willem: *See—*
Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, 3,811,002.

Patchell, Albert George, to Smith & Nephew Research Limited. Apparatus for improving the regularity of embossments on thin polymer film. 3,810,729, Cl. 425-308.000.

Patentverwertungs- und Finanzierungsgesellschaft Serania AG: *See—*
Schmid, August; and Goens, Georges, 3,810,617.

Paulay, Zoltan: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Paxson, Ernest B., Jr.: *See—*
Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., 3,810,803.

Payne, Calvin L., Jr., to Tudor Metal Products Corporation. Hockey game playing piece. 3,810,622, Cl. 273-85.00a.

Pearce, Warren, Jr.: *See—*
Cope, Kenneth P.; and Pearce, Warren, Jr., 3,811,043.

Pechiney Ugine Kuhlmann: *See—*
Brun, Marcel; and Riegert, Alfred, 3,810,500.

Peck, Truman C., to Alpine Valley Resort, Inc. Ski lift. 3,810,427, Cl. 104-173.000.

Peddinghaus, Carl Ullrich. Conveyor device for conveying bars. 3,810,406, Cl. 83-222.000.

Pellerano, Giuseppe: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, 3,810,984.

Pelsue, T. A., Company: *See—*
Beavers, Allan E., 3,810,482.

Pennau, Karl L.: *See—*
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.

Pennsylvania Engineering Corporation: *See—*
Fisher, Howard M., 3,810,297.

Pennwalt Corporation: *See—*
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.

Perkins, Richard E., to GTE Sylvania Incorporated. Method of segregating temperature responsive circuit brakes according to their opening temperature. 3,810,541, Cl. 209-81.00r.

Perry, Roger L., to Gillette Company, The. Blade unit. 3,810,305, Cl. 30-32.000.

Perry, Russell C., to Artek Systems Corporation. Micro-biological colony counter. 3,811,036, Cl. 235-92.0pc.

Pervel Industries, Inc.: *See—*
Anderson, Albert E., 3,810,808.
Peter, Philip R. Two for one twisting device. 3,810,353, Cl. 57-58.830.
Petersen, Harro: *See—*
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.
Peterson, Harold B. Folding implement cart. 3,810,660, Cl. 280-411.00a.
Peterson, William D. Contginer for cooling, storage, and shipping of human organ for transplant. 3,810,367, Cl. 62-457.000.
Petro-Form Industries (Trinidad) Ltd.: *See—*
Doyle, Earl N., 3,810,860.
Petrolite Corporation: *See—*
Redmore, Derek, 3,810,907.
Pfister Waagen GmbH: *See—*
Haack, Werner, 3,810,638.
Philippe, Jean B., to Ferlux. N-substituted-N-alkanol piperazine carbamates, and acid addition salts thereof. 3,810,897, Cl. 260-268.0ft.
Phillips Petroleum Company: *See—*
Bertus, Brent J., 3,810,954.
Cichowski, Robert S., 3,810,953.
Doss, Richard C., 3,810,877.
Mathis, Ronald D.; and Dix, James S., 3,810,862.
Pitzer, Emory W., 3,810,844.
Phipps, Cornelius M., to Superior Toy Manufacturing Co., Inc. Gumball machine coin bank. 3,810,535, Cl. 194-85.000.
Pickett, Charles G.; and Molnar, James V., to Bio-Medical Sciences Inc. Method and apparatus for depositing precisely metered quantities of liquid on a surface. 3,810,779, Cl. 117-37.000.
Pickin, John Rabert: *See—*
Hulmes, Harold; and Pickin, John Rabert, 3,810,300.
Pierdet, Andre: *See—*
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, 3,810,887.
Pingel, Hans A. Locating stop for work to be machined or the like. 3,810,311, Cl. 33-169.00r.
Pinnow, Douglas Arthur: *See—*
Buhite, Paul Harold; and Pinnow, Douglas Arthur, 3,810,802.
Pittman, Raymond H., to Masonite Corporation. Multi-color, multipatterned panels. 3,810,774, Cl. 117-12.000.
Pitzer, Emory W., to Phillips Petroleum Company. Phosphorus-tin oxide oxidative dehydrogenation catalyst. 3,810,844, Cl. 252-435.000.
Pivar, Stewart, to Rotoron Corporation. Thermally controlled apparatus for molding hollow plastic articles and the like. 3,810,727, Cl. 425-144.000.
Pivawer, Philip M., to Olin Corporation. Process for preparing tris(2-haloalkyl) phosphites. 3,810,961, Cl. 260-977.000.
Piwonka, Thomas S., to TRW Inc. Method for directional solidification. 3,810,504, Cl. 164-60.000.
Plessey Handel und Investments A.G.: *See—*
Turner, Horace George, 3,810,714.
Pobegailo, Grigory Gavrilovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Pohl, Ulrich: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.
Pohlmann, Heinrich; and Schmidt, Karl-Julius, to Bayer Aktiengesellschaft. Insecticidal and acaricidal formulation of increased stability. 3,810,980, Cl. 424-200.000.
Polaroid Corporation: *See—*
Abbadessa, Joseph J., 3,811,081.
Moodie, Donald E., 3,810,689.
Seiden, Myron A., 3,810,691.
Wang, David, 3,810,778.
Pollard, Stephen Leroy. Elongated stressed structural member. 3,810,337, Cl. 52-223.00r.
Polson, Alfred; and Kaufmann, Karl Josef, to South African Inventions Development Corporation. Ultracentrifuge rotor. 3,810,576, Cl. 233-37.000.
Polytech Systems, Inc.: *See—*
Ehrenfreund, Herbert A., 3,810,964.
Polzin, Dean A.: *See—*
Bust, Gordon A.; and Polzin, Dean A., 3,810,551.
Pommer, Ernest-Heinrich: *See—*
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.
Popplewell, Alan Francis: *See—*
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Poretti, Isidoro: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.
Porta Service, Inc.: *See—*
Cable, Russell D.; and Brenneman, Homer K., 3,810,487.
Porter, Wellington W. Harvesting apparatus for removing crops from plants or vines. 3,810,512, Cl. 171-14.000.
Posner, John David, to National Cash Register Company, The. Printed circuit card guide. 3,810,433, Cl. 211-41.000.
Post, John R. Method of blasting with an NH4 NOS3-nitropropane blasting agent. 3,810,425, Cl. 102-23.000.
Potruch, Robert A.: *See—*
Burnell, Norman; and Potruch, Robert A., 3,811,006.
Povill, Jonathan W. Steel wool swab. 3,810,334, Cl. 51-358.000.
PPG Industries, Inc.: *See—*
Rau, Frank J.; and Staahl, Joseph R., Jr., 3,810,743.
Prachar, Otakar P., to General Motors Corporation. Gas generator with liquid phase cooling. 3,810,655, Cl. 280-150.0ab.
Prat Deniel Poelman: *See—*
Rebours, Albert, 3,810,349.
Prazdnikov, Anatoly Vladimirovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Prete, Ernest, Jr., to Ancra Corporation. Automatic pallet locking device. 3,810,534, Cl. 193-40.000.
Price, Joseph F.: *See—*
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Procter & Gamble Company, The: *See—*
Atkinson, Ronald Edward, 3,810,846.
Evans, Stephen F.; and Sorensen, Eugene R., 3,810,344.
Properzi, Ilario. Hot rolling method for obtaining wire rod. 3,810,371, Cl. 72-39.000.
Prymka, Margot: *See—*
Ries, Christian; and Prymka, Margot, 3,810,792.
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., to Olin Corporation. Composite rod or wire. 3,810,287, Cl. 29-191.600.
Puchas, Christian, to Daimler-Benz Aktiengesellschaft. Suspension for the rear wheels of a motor vehicle. 3,810,651, Cl. 280-124.00a.
Pugin, Andre: *See—*
Model, Ernst; von der Crone, Jose; and Pugin, Andre, 3,810,889.
Purchase, Francis Jack, to Autotelic Industries, Ltd. Scanning device. 3,811,072, Cl. 315-169.0tv.
Purrmann, Robert: *See—*
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.
Putney, Robert B.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.
Puxbaumer, Hans: *See—*
Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, 3,810,831.
Queyroix, Christian A., to Aluminium Suisse S.A. Die. 3,810,372, Cl. 72-56.000.
Queyroix, Christian A., to Aluminium Suisse S.A. Machine for the magnetomotive forming of metallic objects. 3,810,373, Cl. 72-56.000.
Quirk, Jack M. Running gear. 3,810,652, Cl. 280-125.000.
Raber, Samuel; and Heim, Alan M., to Baker Industries, Inc. Supervised battery power supply. 3,811,122, Cl. 340-249.000.
Rabinowitz, L. M., & Company, a Division of Athlone Industries, Inc.: *See—*
Simon, Jack, 3,810,435.
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Fungicide. 3,810,767, Cl. 106-15.0af.
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Method of preparing polyethylene parts for ultrasonic welding. 3,810,799, Cl. 156-73.000.
Rakcevic, Savo, to Titovi Zavodi Litostroj. Starting arrangement for reversible pump-turbines. 3,810,717, Cl. 417-323.000.
Ralston Purina Company: *See—*
Waggle, Doyle H., 3,810,764.
Ramanathan, Visvanathan: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Ranks Hovis McDougall, Limited: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.
Raphael, Ralph Alexander: *See—*
Jones, Geraint; and Raphael, Ralph Alexander, 3,810,943.
Rapun, Raul: *See—*
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Rasmussen, Svein B.: *See—*
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.
Rau, Frank J.; and Staahl, Joseph R., Jr., to PPG Industries, Inc. Thermal conditioning of molten glass. 3,810,743, Cl. 65-29.000.
Rauh, Jack, to Modern Faucet Manufacturing Company. Adjustable shower head assembly with diverter valve. 3,810,580, Cl. 239-460.000.
Ravel, Leon, to Georges Lagain. Machines for the manufacture of plastic bags. 3,810,420, Cl. 93-93.0ht.

Ray-Chaudhuri, Dilip K.; and Iovine, Carmine P., to National Starch and Chemical Corporation. Fluorocarbon sulfonic acid water and oil repellency agents. 3,810,939, Cl. 260-513.00r.
Raymond International, Inc.: *See*—
Padgett, Clifford A.; and Slade, Lester C., 3,810,441.
RCA Corporation: *See*—
Weimer, Paul Kessler, 3,811,055.
Read, Fredrick C.: *See*—
Klein, Donald R.; and Read, Fredrick C., 3,810,690.
Reagan, John J., to Standard Oil Company, The. Multiple flare stack support system. 3,810,733, Cl. 431-202.000.
Rebours, Albert, to Prat Daniel Poelman. Apparatus for putting a gas in contact with a liquid. 3,810,349, Cl. 55-248.000.
Rechter, Harold L.: *See*—
Parsons, Joseph R.; and Rechter, Harold L., 3,810,768.
Recreation Creations, Inc.: *See*—
Nunnink, Charles P., Jr.; and Bell, Marvin D., 3,810,664.
Reddaway, Stewart Fiddian, to International Computers Limited. Pseudo-random number generators. 3,811,038, Cl. 235-152.000.
Redmore, Derek, to Petrolite Corporation. Full pyridine phosphonic acids. 3,810,907, Cl. 260-297.00p.
Redpath, Donald C.: *See*—
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, 3,811,011.
Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard. Electric incandescent lamps. 3,811,063, Cl. 313-222.000.
Reicheneder, Franz: *See*—
Fischer, Adolf; Koenig, Karl-Heinz; and Reicheneder, Franz, 3,810,751.
Reid, Claude L., 20% to Lee, Raymond, Organization, Inc., The. Golf ball pickup device. 3,810,669, Cl. 294-19.00a.
Reimer, Walter E. Vehicle with multiple rocking beam suspension system and steering means. 3,810,516, Cl. 180-24.000.
Reintjes, Marten: *See*—
Buchholz, Richard Frank; and Reintjes, Marten, 3,810,941.
Reiter Industries, Inc.: *See*—
Reiter, Jerome A., 3,810,604.
Reiter, Jerome A., to Reiter Industries, Inc. Tank agitating and cleaning system. 3,810,604, Cl. 259-18.000.
Reliance Electric Company: *See*—
Gorski, Paul T., 3,810,636.
Relles, Howard M.: *See*—
Hay, Allan S.; and Relles, Howard M., 3,810,879.
Relles, Howard M., to General Electric Company. Method of chlorinating maleic anhydride, maleimides and bismaleimides. 3,810,913, Cl. 260-326.260.
Relton Corporation: *See*—
Voscovich, Steven J., 3,810,514.
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, to Institut Francais du Petrole des Carburants et Lubrifiants. Process for manufacturing sulfur dioxide from ammonium sulfate. 3,810,968, Cl. 423-356.000.
Reuther, Wolfgang: *See*—
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.
Rexroth, G. L., GmbH: *See*—
Gutekunst, Werner, 3,810,486.
Reynolds, Carl D.: *See*—
Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., 3,810,780.
Rhine, Samuel; and Showalter, Merle Robert. Timed pulsed fuel injection apparatus and method. 3,810,581, Cl. 239-533.000.
Rhodes, Herbert M., to Oil Mop, Inc. Oil/water separation acceleration media. 3,810,832, Cl. 210-23.000.
Rhone-Poulenc S.A.: *See*—
Chapurlat, Robert; and Kuntz, Emile, 3,810,848.
Chapurlat, Robert; and Kuntz, Emile, 3,810,872.
Chapurlat, Robert; and Kuntz, Emile, 3,810,873.
Chapurlat, Robert; and Kuntz, Emile, 3,810,888.
Tchelitcheff, Serge, 3,810,908.
Rice, David E.; and Hansen, Robert L. Fluorine-containing block copolymers. 3,810,875, Cl. 260-899.000.
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., to Calspan Corporation, mesne. Electric-discharge excited gaseous laser. 3,811,095, Cl. 331-94.500.
Richardson, Norman: *See*—
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Richter, Ferdinand Joseph, to American Cyanamide Company. Soap impregnated resilient polyurethane foams. 3,810,841, Cl. 252-91.000.
Richter Gedeon Vegyeszeti Gyar Rt.: *See*—
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.
Richter, Harvey E., to Tec Group, Inc., The. Mechanical seal. 3,810,635, Cl. 277-34.000.
Riegert, Alfred: *See*—
Brun, Marcel; and Riegert, Alfred, 3,810,500.
Ries, Christian; and Prymka, Margot, to Collardin, Gerhard, GmbH. Process for the application of phosphate coatings on steel, iron and zinc surfaces. 3,810,792, Cl. 148-6.15z.
Rigterink, Raymond H., to Dow Chemical Company, The. O,O-diethyl O-(6-fluoro-2-pyridyl)phosphorothioate. 3,810,902, Cl. 260-294.80k.
Rinesch, Rudolf: *See*—
Schoffmann, Rudolf; and Rinesch, Rudolf, 3,810,507.
Riordan, Michael D.; and Weetman, David G., to Texaco Inc. Extraction process. 3,810,951, Cl. 260-677.00a.
Ritchie, Ellis Ray. Calendar display device. 3,810,322, Cl. 40-107.000.
Rittel, Werner; and Brugger, Max, to Ciba-Geigy Corporation. Peptides having D-α-phenylglycine, L-lysine and L-ornithine in positions 1, 17 and 18, respectively. 3,810,881, Cl. 260-112.500.
Roberts, Karl Hutchson: *See*—
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Robertshaw Controls Company: *See*—
Merrell, Kenneth C., 3,811,051.
Robinson, Kenneth Buckley, to Thorn Electrical Industries Limited. Lamps. 3,810,684, Cl. 316-4.000.
Rodgers, Fletcher. Pipe coupling. 3,810,665, Cl. 285-97.000.
Roesch, Androniki: *See*—
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Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.
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Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.
Rogers, Betty W. Cover of cervical collars. 3,810,466, Cl. 128-75.000.
Rogers, Dow A., Jr.: *See*—
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., 3,811,005.
Rogers, Joan H.: *See*—
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Rohrbacher, Herbert E., to Bergandi Manufacturing Company, Inc. Fabrication of chain wire fencing incorporating slats. 3,810,496, Cl. 140-25.000.
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Diamond, Julius; and Auyang, King, 3,810,979.
Diamond, Julius, 3,810,985.
Rosenbaum, Harold Matthew; and Duerden, Francis, to Marconi Company Limited, The. Display systems. 3,810,317, Cl. 35-9.00a.
Rosztoczy, Ferenc E.: *See*—
Antypas, George A.; Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.
Roth, Josef. Detachable slidable form block for reciprocating die press. 3,810,381, Cl. 72-421.000.
Rothmans of Paul Mall Canada Limited: *See*—
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Rotoron Corporation: *See*—
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Roussel-UCLAF: *See*—
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, 3,810,887.
Rousselet, Andre: *See*—
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Rowland Development Corporation: *See*—
Rowland, William P.; and Rowland Development Corporation, 3,810,804.
Rowland, William P.; and Rowland Development Corporation. Method of making retroreflective material. 3,810,804, Cl. 156-245.000.
Rowton, Richard Lee, to Jefferson Chemical Company, Inc. Piperazine phosphates as fire retardants for organic polymers. 3,810,850, Cl. 260-2.5aj.
Rudolph, Peter: *See*—
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Rufenacht, Switzerland: *See*—
Bohner, Beat; and Rufenacht, Switzerland, 3,810,919.
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Russo, Dominic C., 3,810,339.
Russo, Dominic C., to Russo Architectural Metals, Incorporated. Method and apparatus for forming construction element locating and mounting voids in a poured concrete structure. 3,810,339, Cl. 52-700.000.
Rutner, Herman; Rapun, Raul; and Lewin, Nathan, to Becton, Dickinson and Company. Derivatives of digitoxigenin. 3,810,886, Cl. 260-239.570.
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Ryoki, Taizo: *See*—
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S. R. M. Hydromekanik Aktiebolag: *See*—
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Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, 3,811,112.

Saari, Walfred S., to Merck & Co., Inc. Blood pressure lowering method using an aporphine. 3,810,987, Cl. 424-258.000.

Sadao, Shoji, to Fuller & Sadao, Incorporated. Geodesic pentegon and hexagon structure. 3,810,336, Cl. 52-81.000.

Safety Consultants: *See*—
Kornhauser, Murray, 3,810,668.

SAFT-Societe des Accumulateurs Fixes et de Traction: *See*—
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Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, to Matsushita Electric Industrial Co. Ltd. Keyboard operated pattern generating device. 3,811,113, Cl. 340-172.500.

Sakai, Yoshio: *See*—
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Sakurai, Yasuhiko, to Nippondenso Co., Ltd. Flashing direction indicator. 3,811,107, Cl. 340-80.000.

Salamander Aktiengesellschaft: *See*—
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Sandoz Ltd.: *See*—
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Sandvik Aktiebolag: *See*—
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Sani-Seat, Inc.: *See*—
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Sasaki, Takeshi: *See*—
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.

Sato, Hideo; and Shimizu, Kunitoshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for preparing polymers. 3,810,878, Cl. 260-78.50b.

Sato, Kunito; and Hegarty, Gerald R., to Armour and Company. Inhibition of warmed-over flavor in uncured cooked meats. 3,810,998, Cl. 426-332.000.

Sato, Ryo: *See*—
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.

Saucy, Gabriel, to Hoffmann-La Roche Inc. Substituted 1-(3,5-substituted-4-isoxazolyl)-7-hydroxy-non-8-en-3-ones and tautomers. 3,810,909, Cl. 260-307.00h.

Saulsman, Jack C. Controlled power source with apparatus and method including indicia of control means actuation at operational locations selectively spaced from source, as for, but not limited to, welding operations. 3,811,085, Cl. 322-16.000.

Savage, Sidney Clifford: *See*—
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Scandia Packaging Machinery Company: *See*—
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Scannell, John B., to Parker-Hannifin Corporation. Frangible backup ring for sealing rings. 3,810,639, Cl. 277-188.000.

Schaffstall, Eugene; and Duncan, Ira J., to Consolidated Foods Corporation. Aluminum etch bath additive. 3,810,797, Cl. 156-22.000.

Schambacher, Eugene E. Baton. 3,810,411, Cl. 84-477.00b.

Scheiber, Robert: *See*—
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Scheinpflug, Hans: *See*—
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Schell, Donald H.: *See*—
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Schenk, Donald E., to General Motors Corporation. Pressure supported modulator. 3,810,680, Cl. 303-6.00c.

Scherb, Helmut: *See*—
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Schering Corporation: *See*—
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Scheuer, Nicholas G.: *See*—
Flegel, George J.; and Scheuer, Nicholas G., 3,810,597.

Schiesterl, Gerhard; and Wulf, Helmut, to Daimler-Benz Aktiengesellschaft. Motor vehicles equipped with gas cushion. 3,810,653, Cl. 280-150.0ab.

Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, to Erdolchemie Gesellschaft mit beschrankter Haftung. Process for recovering cyclopentene and conjugated C_5-diolefins. 3,810,831, Cl. 208-321.000.

Schloemann Aktiengesellschaft: *See*—
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Schlogelhofer, Ferdinand, to Vereinigte Metallwerke Panshofen-Berndorf Aktiengesellschaft. Apparatus for the extrusion of billets. 3,810,379, Cl. 72-255.000.

Schluckebier, Floyd A.; and Harkrader, Ronald L., to General Motors Corporation. Steering gear assembly. 3,810,399, Cl. 74-409.000.

Schlumberger, Allan A., to Hooker Chemical Corporation. Process for the production of chlorine dioxide. 3,810,969, Cl. 423-478.000.

Schmelzer, Juergen F., to Rothmans of Paul Mall Canada Limited. Measurement of moisture content of materials. 3,811,087, Cl. 324-58.50a.

Schmerling, Louis, to Universal Oil Products Company. Alkylation of aromatic compounds. 3,810,947, Cl. 260-651.00r.

Schmid, August; and Goens, Georges, to Patentverwertungs- und Finanzierungsgesellschaft Serania AG. Bowling pin loading apparatus and method. 3,810,617, Cl. 273-43.00d.

Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, to Ciba-Geigy AG. Adducts, containing epoxide groups, from polyglycidyl compounds and acid polyesters of aliphatic-cycloaliphatic dicarboxylic acids, process for their manufacture and use. 3,80,855, Cl. 260-22.00d.

Schmidt, Hans, to Motorola, Inc. Channel selector and indicator for multi-channel receiver. 3,811,100, Cl. 334-15.000.

Schmidt, Karl-Julius: *See*—
Pohlmann, Heinrich; and Schmidt, Karl-Julius, 3,810,980.

Schmitt, Charles R.: *See*—
Benton, Samuel T.; and Schmitt, Charles R., 3,810,963.

Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, to ESPE Fabrik Pharmazeutischer Praparate GmbH. Novel diacrylic and dimethacrylic acid esters. 3,810,938, Cl. 260-486.00r.

Schoffmann, Rudolf; and Rinesch, Rudolf, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Continuous casting plate for slabs. 3,810,507, Cl. 164-260.000.

Scholl, Howard O., to American Air Filter Company, Inc. U-shaped fluid treating filter. 3,810,350, Cl. 55-487.000.

Scholten, Pieter Cornelis: *See*—
Van Ruler, Johannes; and Scholten, Pieter Cornelis, 3,810,840.

Schoolcraft, Jim F.: *See*—
Crocker, Roger A.; and Schoolcraft, Jim F., 3,810,553.

Schreyer, Kenneth D.; and Manney, Charles J., to Columbus McKinnon Corporation. Load chain loose end stop. 3,810,359, Cl. 59-93.000.

Schroter, Hans O. Variable ratio brake operating lever. 3,810,400, Cl. 74-518.000.

Schuler, Lawrence D.: *See*—
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.

Schulman, Elliot R.: *See*—
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.

Schumann, Robert W., to Nicolet Instruments, Inc. Analog-to-digital converter. 3,811,125, Cl. 340-347.0ad.

Schuppel, Friedrich, to Zahnradfabrik Friedrichshafen Aktiengesellschaft. Automotive transmission with clutch pedal and hydraulic torque converter. 3,810,532, Cl. 192-.062.

Schwarcz, Joseph: *See*—
White, Edward L.; Schwarcz, Joseph; and Lang, William D., 3,810,864.

Schweizerische Industrie-Gesellschaft: *See*—
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.

Scott, Hollis C., to Western Wood Structures, Inc. Dome joint. 3,810,342, Cl. 52-758.00r.

Scott, Wray M., III. Golf putter sighting device. 3,810,633, Cl. 273-183.00d.

Seale, Virgil L.: *See*—
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.

Searle, G. D., & Co.: *See*—
Baran, John S.; and Liang, Chi-Dean, 3,810,927.
Lenz, George R., 3,810,926.
Miyano, Masateru, 3,810,936.

Seiden, Myron A., to Polaroid Corporation. Photographic apparatus including resilient mirror mount. 3,810,691, Cl. 350-288.000.

Seitz, Neal B., to Logicon, Inc. Adaptive pulse code modulation system. 3,811,014, Cl. 179-15.0bw.

Semp, Bernard Albert, to American Cyanamid Company. Minimizing tissue reaction to glove powder. 3,810,458, Cl. 128-1.00r.

Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., to Monsanto Chemicals Limited. Process of producing a foamed resin sheet. 3,810,965, Cl. 264-53.000.

Sesame Industries, Limited: *See*—
Ellis, Glenn, 3,810,813.

Sevigny, Henry J., to Alco Electronic Products, Inc. Momentary contact, non-bounce switch. 3,811,024, Cl. 200-160.000.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. Strong light weight, bonded, porous aggregate. 3,810,773, Cl. 106-288.00b.

Shape, Norman R.: *See*—
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.

Shea, James J., to Gam Rad, Incorporated. Fluid analyzer with variable light path. 3,810,695, Cl. 356-73.000.

Sheeler, William, 20% to Lee, Raymond, Organization, Inc., The. Whirlpool bath unit. 3,810,464, Cl. 128-66.000.

Shell Oil Company: *See*—
Brooke, Chester B., 3,810,975.
Creaser, Leonard F., 3,810,839.
Lunk, Hans E., 3,810,957.
Oxenham, James Preston, 3,810,546.
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, 3,810,830.

Sheller-Globe Corporation: *See*—
Klein, Donald R.; and Read, Fredrick C., 3,810,690.

Shellman, Carl E.: *See*—
Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.

Shepherd, Lawrence H., Jr., to Ethyl Corporation. Intermolecular addition. 3,810,949, Cl. 260-665.00g.

Shiga, Kazumasa, to Matsushita Electric Industrial Company, Limited. Magneto-sensitive device having PN junction. 3,811,075, Cl. 317-235.00h.

Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, to Hitachi, Ltd. High voltage semiconductor rectifying device. 3,811,084, Cl. 321-11.000.

Shima, Sciya: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Sciya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.

Shimada, Nobuyoshi: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.

Shimizu, Kunitoshi: *See—*
Sato, Hideo; and Shimizu, Kunitoshi, 3,810,878.

Shinozaki, Takashi: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

Shiokawa, Kozo: *See—*
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.

Shirouchi, Yasunari: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, 3,811,061.

Shoin, Susumu: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.

Shoji, Nagayoshi, to Takura Belmont Kubushiki Kaisha. Horizontally adjustable chair in combination with a shampoo bowl unit. 3,810,673, Cl. 297-217.000.

Showalter, Merle Robert: *See—*
Rhine, Samuel; and Showalter, Merle Robert, 3,810,581.

Shragal, Robert, to Wells-Gardner Electronics Corporation. Balance control. 3,811,047, Cl. 250-208.000.

Shudo, Yasunobu, to Hitachi Shipbuilding and Engineering Company Ltd. Slurry carrying vessel. 3,810,547, Cl. 210-242.000.

Shucy, Kenneth C.; and Baker, Donal E., to Westinghouse Electric Corporation. Alternating current sensing circuit and method. 3,811,073, Cl. 317-31.000.

Shultz, Allan R.: *See—*
Herrick, Carlyle S.; and Shultz, Allan R., 3,810,814.

Shute, Adrian L. Locking mechanism. 3,810,273, Cl. 16-147.000.

Sidorov, Ivan Sergeevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Siebert, Howard G. Snow shovel. 3,810,320, Cl. 37-46.000.

Siegal, Burton L., to Tiffany Industries, Inc. Shelf assembly. 3,810,430, Cl. 108-144.000.

Sicke, Helmut. Method and apparatus for producing vibratory motion. 3,810,417, Cl. 91-39.000.

Siemens Aktiengesellschaft: *See—*
Bork, Peter, 3,810,747.
Koch, Christian, 3,810,732.
Lechner, Ernst-Friedrich, 3,811,086.

Signal Oil and Gas Company: *See—*
Kartinen, Ernest Orval, 3,810,347.

Signouret, Jean-Baptiste: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.

Silverman, Edward Jerome: *See—*
Michelet, Robert Wilson; and Silverman, Edward Jerome, 3,811,050.

Simon, Jack, to Rabinowitz, L. M., & Company, a Division of Athlone Industries, Inc. Apparatus for making a fastener section for securing elastic material thereto. 3,810,435, Cl. 112-105.000.

Simonini, Franco: *See—*
Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.

Singer Company, The: *See—*
DeLeo, Louis P., 3,811,093.
Williams, Arthur B., 3,811,098.

Sitelines, Inc.: *See—*
McCurdy, Richard H.; and Connelly, Lawrence W., 3,810,331.

Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., to Texas Instruments, Incorporated. Method of forming dielectrically isolated silicon diode array vidicon target. 3,810,796, Cl. 156-8.000.

Skarbo, Roald R.; and Miguel, Antonio H., to Kennecott Copper Corporation. Metal recovery from salt mixtures of copper and metals more electropositive than copper. 3,810,971, Cl. 423-565.000.

Skinner, Stanley J.: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.

Slade, Lester C.: *See—*
Padgett, Clifford A.; and Slade, Lester C., 3,810,441.

Slusarczuk, George M. J.; and Brown, John F., Jr., to General Electric Company. Silicone-silica compositions. 3,810,843, Cl. 252-313.00s.

Smale, William B., to Outboard Marino Corporation. Quiet snowmobile. 3,810,518, Cl. 180-54.00a.

Smith & Nephew Research Limited: *See—*
Patchell, Albert George, 3,810,729.

Smith, Charles Giles, to Upjohn Company, The. Adenosine 3,5-cyclic monophosphate palmitates. 3,810,883, Cl. 260-211.50r.

Smith, Gary C., to Abex Corporation. Adjustable fixed displacement hydraulic transducer apparatus. 3,810,419, Cl. 91-505.000.

Smith, Gary E.; and Bailey, John G., Jr., to Chem Dynamics, Inc. Edge mold having epoxy resin walls. 3,810,600, Cl. 249-95.000.

Smith, Peter D.: *See—*
Kletecka, George; and Smith, Peter D., 3,810,912.

Smith, William E., to GSW Appliances Limited. Hinge structure. 3,810,275, Cl. 16-189.000.

Smith, William Michael, Jr., to International Business Machines Corporation. Field effect transistor integrated circuit and memory. 3,811,076, Cl. 317-235.00r.

Smithkline Corporation: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe (said Actor assor. to), 3,810,984.

Smiths Industries Limited: *See—*
Cross, David Edward, 3,810,474.

Smtih, Thomas R.; and Faust, Stewart W., to Maytag Company, The. Fluid control system. 3,810,480, Cl. 134-104.000.

Smyth Manufacturing Company, The: *See—*
McCahon, John O.; and Byrne, William J., 3,810,612.

Sobel, Jay E., to Universal Oil Products Company. Butene separation and alkylation. 3,810,955, Cl. 260-683.490.

Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.

Societe Anonyme dite: Societe Nationale des Petroles: *See—*
Barbier, Maurice; and Staron, Philippe, 3,811,111.

Societe d'Etudes et d'Applications Biochimiques; and Ugine-Kuhlmann: *See—*
Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.

Societe en nom Collectif Science Union et Cie,: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Societe Financiere et Industrielle des Ateliers: *See—*
Chollet, Maurice; and Genmat, Francois, 3,810,449.

Societe Francaise de Recherche Medical: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Societe Internationale De Macanique Industrielle S.A.: *See—*
Bonvin, Jacques, 3,810,637.

Societe Nationale des Petroles d'Aquitaine pour Aquitaine: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.

Solari & C/Udine S.p.A.: *See—*
Solari, Fermo, 3,811,019.

Solari, Fermo, to Solari & C/Udine S.p.A. Rotary-drum programming timer device. 3,811,019, Cl. 200-38.0ca.

Solymos, Frederick: *See—*
Tosato, Lawrence; and Solymos, Frederick, 3,810,529.

Somekawa, Akira: *See—*
Taira, Tetsuro; and Somekawa, Akira, 3,810,408.

Song, John, to American Cyanamid Company. Polycarboxylic acid-bridged thiomethylenephenol antioxidants. 3,810,929, Cl. 260-455.00r.

Sorensen, Eugene R.: *See—*
Evans, Stephen F.; and Sorensen, Eugene R., 3,810,344.

Sorenson, Merle H.: *See—*
Klund, Robert N.; and Sorenson, Merle H., 3,810,407.

South African Inventions Development Corporation: *See—*
Polson, Alfred; and Kaufmann, Karl Josef, 3,810,576.

S.p.A. Virginio Rimoldi & C.: *See—*
Marforio, Nerino, 3,810,436.

Sparr, Albert E. Anti-fishtail device for trailers. 3,810,521, Cl. 180-103.000.

Speer, Lawrence, to Vinyltron Corporation. Method for patching materials such as plastic. 3,810,801, Cl. 156-94.000.

Sperry Rand Corporation: *See—*
Hurlburt, Joseph C.; and Halls, Lawrence M., 3,810,517.
Licke, David R., 3,810,306.

Sperry-Sun Well Surveying Company: *See—*
Stancliff, Thomas H., 3,810,387.

Spialter, Eila B.: *See—*
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, 3,810,423.

Spiller, Richard; Moser, Gottfried; and Berthold, Walter, to Klockner-Humboldt-Deutz Aktiengesellschaft. Motor vehicle with two driving units, especially for agricultural purposes. 3,810,513, Cl. 172-114.000.

Spontellim Leonard P., to Crawford Fitting Company. Method of swaging and testing ferrules. 3,810,296, Cl. 29-407.000.

Sprengling, Gerhard R.: *See—*
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., 3,811,005.

Squibb, E. R., & Sons, Inc.: *See—*
Hoehn, Hans; and Chasin, Mark, 3,810,904.
Hoehn, Hans; and Bernstein, Jack, 3,810,905.

Staahl, Joseph R., Jr.: *See—*

Rau, Frank J.; and Staahl, Joseph R., Jr., 3,810,743.
Stach, Kurt: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.
Stadler, Otto E. Parrot-stand perch. 3,810,445, Cl. 119-26.000.
Stafford, John P., to Honeywell Information Systems, Inc. Binary arithmetic, logical and shifter unit. 3,811,039, Cl. 235-175.000.
Stahlwerke Bruninghaus Gesellschaft mit beschrankter Haftung: *See—*
Oehm, Otto, 3,810,375.
Stahr, Richard W.; and Morse, Theodore H., to Eastman Kodak Company. Matte photoconductive layers for use in electrophotography. 3,810,759, Cl. 96-1.500.
Stalego, Charles J., to Owens-Corning Fiberglas Corporation. Method and apparatus for processing glass and controlling the thermal pattern in a stream feeder. 3,810,741, Cl. 65-2.000.
Staley, A. E., Manufacturing Company: *See—*
Bomball, William A., 3,810,783.
Stancliff, Thomas H., to Sperry-Sun Well Surveying Company. Apparatus for recording borehole conditions at the surface. 3,810,387, Cl. 73-151.000.
Standard Oil Company, The: *See—*
Reagan, John J., 3,810,733.
Stanford Research Institute: *See—*
Karp, Arthur, 3,811,101.
Stanley Works, The: *See—*
Haven, Robert L., 3,810,591.
Stanton, Thomas A. Bicycle-attached article carrier. 3,810,559, Cl. 224-41.000.
Staron, Philippe: *See—*
Barbier, Maurice; and Staron, Philippe, 3,811,111.
Stauffer Chemical Company: *See—*
Gaughan, Edmund Jeremiah, 3,810,959.
Gutman, Arnold D., 3,810,982.
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.
Menn, Julius Joel, 3,810,992.
Viksne, George Juris, 3,810,925.
Stegeman, Berend. Dispenser with adjustable paddle vending member. 3,810,560, Cl. 221-116.000.
Stegner, Douglas M.: *See—*
Russell, Lee E.; and Stegner, Douglas M., 3,810,573.
Stein, William W.: *See—*
Antypas, George A.; Roszloczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.
Steinbarger, Jay O.: *See—*
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.
Steinberg, Samuel B., to Air Techniques, Inc. Portable filter evaluation apparatus. 3,810,697, Cl. 356-103.000.
Stevens, Keith Drummond: *See—*
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, 3,811,080.
Stevenson, Basil Charles James: *See—*
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.
Stevenson, Gary E.: *See—*
Boebel, Carl P.; and Stevenson, Gary E., 3,810,777.
Steycrmark, Paul R. Method for decontaminating chemical warfare agents. 3,810,788, Cl. 134-42.000.
Steycrmark, Paul R., to Grace, W. R., & Co. Composition for decontaminating chemical warfare agents. 3,810,842, Cl. 252-153.000.
Stolzer, Paul, to KEURO Maschinenbau Gesellschaft mit beschrankter Haftung & Co. Kommanditgesellschaft. Apparatus for supplying material. 3,810,404, Cl. 83-71.000.
Strahan, Ronald R. Control system for gas-shielded electric welders. 3,811,027, Cl. 219-74.000.
Strand, John B. Automatic pressurization system for inflated pool enclosure. 3,810,262, Cl. 4-172.120.
Strandell, Per-Olof, to Sandvik Aktiebolag. Moulds. 3,810,382, Cl. 72-467.000.
Strom, John R., to Sweco, Inc. Material handling system for vibratory mills. 3,810,585, Cl. 241-171.000.
Strubhar, Malcolm K.: *See—*
Fitch, John L.; and Strubhar, Malcolm K., 3,810,510.
Strzelewicz, Anthony S., to General Motors Corporation. Remote engine tachometer. 3,811,089, Cl. 324-170.000.
Stuart, Alexander: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba, 3,810,893.
Stubbmann, Albert. Radish press. 3,810,308, Cl. 30-130.000.
Studdard, Donald T.; and Morrison, Thomas E., to Continental Conveyor and Equipment Company. Fabricated brake drum and hub assembly. 3,810,678, Cl. 301-6.00s.
Suhner, Willy. Ski binding construction. 3,810,646, Cl. 280-11.35t.
Sullivan, Ann Clare: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Sumida Equipment Industries, Inc.: *See—*
Uratani, Eiichi, 3,810,346.
Sumitomo Chemical Company, Ltd.: *See—*
Yamamoto, Hisao; and Nakao, Masaru, 3,810,906.
Summers, George D., to Fairchild Industries, Inc. Implantable urinary control apparatus. 3,810,259, Cl. 3-1.000.
suovaniemi, Osamo A. Adjustable pipette. 3,810,391, Cl. 73-425.600.
Superior Toy Manufacturing Co., Inc.: *See—*
Phipps, Cornelius M., 3,810,535.
Sutcliffe, Speakman & Co. Ltd.: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.
Sutliff, Gloria M.; and Moreno, Maria F. Cosmetic preparation. 3,810,996, Cl. 424-364.000.
Sutton, Christopher John, to Lucas, Joseph, (Electrical) Limited. Braking systems for vehicles. 3,811,082, Cl. 318-383.000.
Suzue, Takashi: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Suzuki, Kensuke: *See—*
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.
Suzuki, Toshimasa; and Mizushima, Yoshihiko, to Nippon Telegraph and Telephone Public Corporation. Semiconductor device and apparatus using the same. 3,811,074, Cl. 317-235.00k.
Suzuki, Yasuo: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Suzuki, Yoshihisa: *See—*
Miyazaki, Tsutomu; and Suzuki, Yoshihisa, 3,810,352.
Svensson, Bo Herman Thorwald: *See—*
Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, 3,811,112.
Svensson, Sven Hugo, to Akandi-Form AB. Chair aggregates. 3,810,674, Cl. 297-326.000.
Swanson, William C.: *See—*
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., 3,810,519.
Swartz, Henry D. Thermoplastic heat sealing apparatus. 3,810,806, Cl. 156-380.000.
Sweco, Inc.: *See—*
Strom, John R., 3,810,585.
Swick, Edwin Grant; and Nelson, John Frederick, to Illinois Tool Works Inc. Plastic drive fastener. 3,810,279, Cl. 24-73.00p.
Symborski, Alex P.: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
Szporny, Laszlo: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.
Szpur, Roman, to Medicotech Company. Self-retaining surgical retractor. 3,810,462, Cl. 128-20.000.
Tabata, Kazuo; and Togasaka, Masanari. Swimmer's foot fin. 3,810,269, Cl. 9-309.000.
Tacke, Peter; and Hermann, Karl-Heinz, to Bayer Aktiengesellschaft. Self-extinguishing reinforced polyamide moulding compositions. 3,810,861, Cl. 260-37.00n.
Taiho Pharmaceutical Company, Limited: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Taira, Tetsuro; and Somekawa, Akira, to Tsumura, Kaoru. Guide frame for chain saw. 3,810,408, Cl. 83-802.000.
Takagahara, Isamu: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Takahashi, Akio; and Lemper, Anthony L., to Hooker Chemical Corporation. Method of obtaining small particle size polymers and copolymers of vinyl chloride by bulk polymerization. 3,810,958, Cl. 260-880.00r.
Takahashi, Isoji: *See—*
Matsumoto, Seiji; and Takahashi, Isoji, 3,811,048.
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, to Nissan Motor Company, Limited. Worn and reciprocating ball type steering gear for motor vehicles. 3,810,395, Cl. 74-89.150.
Takasaki, Yoshitaka; and Aoki, Kouji, to Hitachi, Ltd. Low frequency cut-off compensation system for baseband pulse transmission lines. 3,811,016, Cl. 179-170.00r.
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, to Daicel Ltd. Process for recovering cobalt from oxo reaction products. 3,810,967, Cl. 423-139.000.
Takeuchi, Tomio: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.
Takeuchi, Yasuhisa; and Nakamura, Hiromichi, to Nissan Motor Company, Limited. Device for detecting mental impairment. 3,811,116, Cl. 340-172.500.
Takura Belmont Kubushiki Kaisha: *See—*
Shoji, Nagayoshi, 3,810,673.
Tappan Company, The: *See—*
Vonderhaar, Arthur W., 3,810,483.
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, to Hitachi, Ltd. DC motor control system. 3,811,079, Cl. 318-338.000.
Tashiro, Tsuneo: *See—*
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Taub, James M.: *See -*
Martin, William W.; Schell, Donald H.; and Taub, James M., 3,810,962.

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Taylor, Wilson G. Bowling ball and method of closing and opening a cavity opening therein. 3,810,619, Cl. 273-63.00e.

Tchelitcheff, Serge, to Rhone-Poulenc S.A. 1-(5-Nitrothiazol-2-yl)-imidazolidine-2-thione. 3,810,908, Cl. 260-306.80r.

Tec Group, Inc., The: *See*—
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Tektronix, Inc.: *See*—
Unger, Peter J.; and Ford, Harry L., 3,811,007.

Terryn, Raymond Martin Florent, to International Standard Electric Corporation. Signal recognition system. 3,811,034, Cl. 235-61.11r.

Texaco Inc.: *See*—
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.
Haugen, Haakon, 3,810,838.
Morduchowitz, Abraham, 3,810,276.
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Texas Instruments, Incorporated: *See*—
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Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.

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Thomas, Brian Martin: *See*—
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.

Thomas, James L., to FMC Corporation. Diallyl phthalate compositions containing diacetone acrylamide. 3,810,865, Cl. 260-42.180.

Thomas, Leonard L. Cigarette holder. 3,810,476, Cl. 131-187.000.

Thompson, Lois J.; formerly Duggan, Lois J., trustees of the estate of Magnuson, Roy M.: *See*—
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Thorn Electrical Industries Limited: *See*—
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Titovi Zavodi Litostroj: *See*—
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Tkachenko, Arkady Semenovich: *See*—
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Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich. Horizontal hydraulic press. 3,810,293, Cl. 29-251.000.

Tober, Edward Paul, to Western Electric Company, Incorporated. Method of continuously sealing an interface between two relatively movable members. 3,810,966, Cl. 264-262.000.

Togasaka, Masanari: *See*—
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Tracotr, Inc.: *See*—
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Troutman, Ronald Roy, to International Business Machines Corporation. Method for making self-aligning structure for charge-coupled and bucket brigade devices. 3,810,795, Cl. 148-187.000.

Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, to Schweizerische Industrie-Gesellschaft. Apparatus for use in the manufacture of a tubular film from plastic material. 3,810,725, Cl. 425-72.000.

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Truhan, Andrew. Surgical aspirating cannula. 3,810,471, Cl. 128-276.000.

Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., to Westinghouse Electric Corporation. Glass-mica composite structure containing diphenyl oxide B-stage resin. 3,811,005, Cl. 174-121.0sr.

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TRW Inc.: *See*—
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Tsuchiya, Hiroyoshi: *See*—
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Tsujimoto, Koji, to Ushio Electric Inc. Electrodesegment type gaseous display device. 3,811,060, Cl. 313-109.500.

Tsukajaki, Shohei, to Kabushiki Kaisha Meidensha. Winding device for electrical machinery. 3,810,586, Cl. 242-1.10a.

Tsumura, Kaoru: *See*—
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Tufte, Paul A.: *See*—
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Tufte, Vernon L.: *See*—
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Tulagin, Vsevolod; and Carreira, Leonard M., to Xerox Corporation. Photographic masking system. 3,810,758, Cl. 96-1.200.

Tungseth, Barry F.; and Lindlof, James A., to Minnesota Mining and Manufacturing Company. Joint structure and method. 3,810,707, Cl. 404-67.000.

Turi, Dino P., 20% to Lee, Raymond, Organization, Inc., The. Sanitary device. 3,810,670, Cl. 294-19.00r.

Turner, Horace George, to Plessey Handel und Investments A.G. Disposal of liquid spillage and the like. 3,810,714, Cl. 417-80.000.

Turner, Norman E.; and McGonigal, James J., to Magnetic Laboratories Inc. Coil manufacturing process. 3,811,045, Cl. 264-250.000.

Turner, William R., to Automation Industries, Inc. Ultrasonic imaging tube. 3,811,067, Cl. 315-11.000.

Ty, Henry; and Dubuc, Rene A., to Texas Instruments, Incorporated. Thermostat metal and method of making. 3,811,028, Cl. 219-117.00r.

Tyler, Edward P.: *See*—
Hildreth, Donald M.; and Tyler, Edward P., 3,811,049.

Tyrrell, Warren A., to United States of America, Navy, mesne. Underwater low frequency sonic communication. 3,811,106, Cl. 340-5.00r.

Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, to Matsushita Electric Industrial Co., Ltd. Automatic stopper system for stopping a power supply in the absence of information signals. 3,811,090, Cl. 325-390.000.

Uffner, Melville Willard, to Air Products and Chemicals, Inc. Fluorochemical compositions for organophobic sizing of paper products. 3,810,772, Cl. 106-287.00r.

Uhl, Klaus; and Fischer, Klaus, to Farbwerke Hoechst Aktiengesellschaft. Process for making fibrous material water-repellent. 3,810,775, Cl. 117-21.000.

Ulmer, Harry E.: *See*—
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Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, to Zaidan Hojin Biseibutsu Kagaku Kenkyo Kai. 5-Dihydrocoriolin C. 3,810,924, Cl. 260-348.00c.

Unger, Peter J.; and Ford, Harry L., to Tektronix, Inc. Facsimile method and apparatus. 3,811,007, Cl. 178-6.60a.

Union Carbide Corporation: *See*—
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Kun, Leslie C., 3,810,509.

Union Electronics (a Division of Union Corporation, The): *See*—
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Young, Donald C., 3,810,749.
Unit 1: *See*—
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Agriculture: *See*—
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National Aeronautics and Space administration; Administrator; with respect to an invention of:
Oliver, Gerald D. Scanning nozzle plating system. 3,810,829, Cl. 204-222.000.
Navy: *See*—
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Uratani, Eiichi, to Sumida Equipment Industries, Inc. Method for removal of oil and water from compressed air. 3,810,346, Cl. 55-29.000.
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, to Commerical Solvent Corporation. Synthesis of zearalanone. 3,810,918, Cl. 260-343.20f.
U.S. Philips Corporation: *See*—
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DeLang, Hendrik; and Velzel, Christiaan Hendrik Frans, 3,810,687.
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Van Ruler, Johannes; and Scholten, Pieter Cornelis, 3,810,840.
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Van den Houte, Jozef Willy: *See*—
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Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,763.
van der Lely, Ary; and Bom, Cornelis Johannes Gerardus. Agricultural cultivator and seed drill combination. 3,810,434, Cl. 111-10.000.
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Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, to Shell Oil Company. Hydrocracking and hydrodesulfurization utilizing a salt-containing neutralized silica-alumina support calcined at different temperature ranges. 3,810,830, I. 208-111.000.
Van Nie, Cornelis Pieter, to U.S. Philips Corporation. Detector for physiological quantities. 3,810,460, Cl. 128-2.05e.
Van Ruler, Johannes; and Scholten, Pieter Cornelis, to U.S. Philips Corporation. Method of manufacturing a magnetic tape lacquer, and a magnetic tape manufactured with said lacquer. 3,810,840, Cl. 252-62.540.
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Veach, Carlos W. Electrically heated stylus for transferring a printing medium. 3,811,030, Cl. 219-237.000.
Veeder Industries, Inc.: *See*—
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Velsicol Chemical Corporation: *See*—
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Vermeulen, Cornelis Geerhard; and Oomen, Joris Jan Cornelis. Electrochemical cell having cathode mass comprising hollow carbon bodies. 3,810,789, Cl. 136-6.0ln.
Vickers, Robert V., to Park-Ohio Industries, Inc. Method and apparatus for quench hardening valve seats. 3,810,608, Cl. 266-4.00e.
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Vidakovic, Milovan: *See*—
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Vigan, Elaine G. Plural rotatable discs chance device. 3,810,628, Cl. 273-142.0ha.
Viksne, George Juris, to Stauffer Chemical Company. Stabilized heat curable silicone elastomers. 3,810,925, Cl. 260-37.0sb.
Vinyltron Corporation: *See*—
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Voscovich, Steven J., to Relton Corporation and Center guided tile drill. . 3,810,514, Cl. 175-403.000.
Voshall, Roy E., to Westinghouse Electric Corporation. Laser initiated three electrode type triggered vacuum gap device. 3,811,070, Cl. 315-150.000.
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Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, to Wildt Mellor Bromley Limited. Patterning machanisms for knitting machines. 3,810,368, Cl. 66-50.00r.

Waggle, Doyle H., to Ralston Purina Company. Method of producing expanded, textured protein products. 3,810,764, Cl. 426-241.000.

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Wang, David, to Polaroid Corporation. Method for production of a photographic film. 3,810,778, Cl. 117-34.000.

Warriner, Gerald E. Portable drive-in platform. 3,810,705, Cl. 404-1.000.

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Weaver, John; and Maynard, David Payne, to Cement & Concrete Association, The. Apparatus for making a rigid road which has a textured surface. 3,810,709, Cl. 404-93.000.

Weaving, John Harold; and Haynes, Cecil David, to British Leyland Motor Corporation, Limited. Exhaust systems for internal combustion engines. 3,810,361, Cl. 60-288.000.

Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., to General Motors Corporation. Hydrostatic machine valve biasing system. 3,810,715, Cl. 417-213.000.

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Weihe, Don L., to Firestone Tire & Rubber Company, The. Hydrofoil attachment for boats. 3,810,268, Cl. 9-2.00r.

Weimer, Howard A., Sr., 30% to Lee Raymond, Organization,Inc., The. Wheelchair steering apparatus. 3,810,658, Cl. 280-269.000.

Weimer, Paul Kessler, to RCA Corporation. Charge transfer fan-in circuitry. 3,811,055, Cl. 307-304.000.

Weinfurt, Phillip T.; and Lijewski, Robert P., to General Electric Company. Vector contour plot of physiological parameters. 3,811,040, Cl. 235-193.000.

Weisfeld, Lewis B.; and Witman, Robert C., to Cincinnati Milacron Chemicals, Inc. Dimethyltin mercapto ester stabilizers for halogenated resins. 3,810,868, Cl. 260-45.75k.

Welhart, Erwin K.; Voss, David L.; and Harrell, John F., to McDonnell Douglas Corporation. Transparent laminate. 3,810,815, Cl. 161-183.000.

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Whales, George Basil. Clipping machines. 3,810,292, Cl. 29-243.570.

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Genaro, Donald M.: *See*—
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Hammann, Paul E.: *See*—
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50 : 3,810,795
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3,810,737
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17 : 3,547
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41 : 3,549

TITLE 37
Patents, Trademarks, and Copyrights

CHAPTER I
PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1
RULES OF PRACTICE IN PATENT CASES

PART 2
RULES OF PRACTICE IN TRADEMARK CASES

Addition of Metric (S.I.) Equivalents

The Commissioner of Patents is revising §§ 1.84, 1.253, 2.31, 2.52, 2.56 and 2.57 of the rules of practice to set forth and encourage use of the metric system of measurements in papers submitted to the Patent Office. These changes provide dual dimensions in both the patent and trademark rules of practice.

Since the revision of these sections makes no change in practice, and merely adds an indication of the metric equivalents, procedure for public comment thereon is deemed unnecessary. Therefore, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971 (85 Stat. 364), and section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), 37 CFR Parts 1 and 2 are hereby amended as follows:

1. In § 1.84, paragraphs (b), (d)(1), (f), (j) and (l) are revised to read as follows:

§ 1.84 Standards for drawings.

* * * * * * *

(b) *Size of sheet and margins.* The size of a sheet on which a drawing is made must be exactly 8½ by 14 inches (21.6 by 35.6 cm.). One of the shorter sides of the sheet is regarded as its top. The drawing must include a top margin of 2 inches (5.1 cm.) and bottom and side margins of one-quarter inch (6.4 mm.) from the edges, thereby leaving a "sight" precisely 8 by 11¾ inches (20.3 by 29.8 cm.). Margin border lines are not permitted. All work must be included with the "sight." The sheets may be provided with two one-quarter inch (6.4 mm.) diameter holes having their centerlines spaced eleven-sixteenths

inch (17.5 mm.) below the top edge and 2¾ inches (7.0 cm.) apart, said holes being equally spaced from the respective side edges.

* * * * * * *

(d) *Hatching and shading.* (1) Hatching should be made by oblique parallel lines, which may be not less than about one-twentieth inch (1.3 mm.) apart.

* * * * * * *

(f) *Reference characters.* The different views should be consecutively numbered figures. Reference numerals (and letters, but numerals are preferred) must be plain, legible and carefully formed, and not be encircled. They should, if possible, measure at least one-eighth of an inch (3.2 mm.) in height so that they may bear reduction to one twenty-fourth of an inch (1.1 mm.); and they may be slightly larger when there is sufficient room. They must not be so placed in the close and complex parts of the drawing as to interfere with a thorough comprehension of the same, and therefore should rarely cross or mingle with the lines. When necessarily grouped around a certain part, they should be placed at a little distance, at the closest point where there is available space, and connected by lines with the parts to which they refer. They should not be placed upon hatched or shaded surfaces but when necessary, a blank space may be left in the hatching or shading where the character occurs so that it shall appear perfectly distinct and separate from the work. The same part of an invention appearing in more than one view of the drawing must always be designated by the same character, and the same character must never be used to designate different parts.

* * * * * * *

(j) *Arrangement of views.* All views on the same sheet must stand in the same direction and should, if possible, stand so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the two-inch (5.1 cm.) margin is on the right hand side. One figure must not be placed upon another or within the outline of another.

* * * * * * *

(l) *Extraneous matter.* An inventor's, agent's, or attorney's name, signature, stamp, or address, or other extraneous matter, will not be permitted upon the face of a drawing, within or without the margin, except that identifying indicia (attorney's docket number, inventor's name, number of sheets, etc.) should be placed within three-fourths inch (19.1 mm.) of the top edge and between the hole locations defined in paragraph (b) of this section. Authorized security markings may be placed on the drawings provided they be outside the illustrations and are removed when the material is declassified.

* * * * * * *

2. In § 1.253, paragraphs (e) and (f) are revised to read as follows:

§ 1.253 Copies of the testimony.

* * * * * * *

(e) When the copies of the record are submitted in printed form, they shall be printed in 11-point type and adequately leaded; the paper must be opaque and unglazed; the size of the page shall be 7⅝ by 10¼ inches (19.4 by 26 cm.); the size of the printed matter shall be 4⅛ by 7⅛ inches (10.6 by 18.2 cm.); and they shall be bound to lie flat when opened. Twenty-five additional copies for the United States Court of Customs and Patent Appeals, should appeal be taken, may also be filed; if no such appeal be taken, the twenty-five copies will be returned to the party filing them.

(f) When the copies of the record are submitted in typewritten form, they must be clearly legible on opaque, unglazed, durable paper approximately 8½ by 11 inches (21.6 by 27.9 cm.) in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277.) The typing shall be on one side of the paper, in not smaller than pica-type; and double-spaced with a margin of 1½ inches (3.8 cm.) on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

* * * * * * *

3. Section 2.31 is revised to read as follows:

§ 2.31 Application must be in English.

The application must be in the English language and plainly written on but one side of the paper. It is deemed preferable that the application be on legal or letter-sized paper, typewritten double spaced, with at least a one and one-half inch (3.8 cm.) margin on the left-hand side top of the page.

4. In § 2.52, paragraphs (c) and (d) are revised to read as follows:

§ 2.52 Requirements for drawings.

* * * * * * *

(c) *Size of paper and margins.* The size of the sheet on which a drawing is made must be 8 to 8½ inches (20.3 to 21.6 cm.) wide and 11 inches (27.9 cm.) long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at

least 1 inch (2.5 cm.) on the sides and bottom of the paper and at least 1 inch (2.5 cm.) between it and the heading.

(d) *Heading.* Across the top of the drawing, beginning one inch (2.5 cm.) from the top edge and not exceeding one-fourth of the sheet, there should be placed a heading, listing in separate lines, applicant's name, applicant's post office address, the dates of first use, and the goods or services recited in the application (or typical item of the goods or services if a number are recited in the application). This heading may be typewritten.

* * * * * * *

5. Section 2.56 is revised to read as follows:

§ 2.56 Specimens.

The application must include five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actually used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable flat material and of a size not to exceed 8½ inches (21.6 cm.) wide and 13 inches (33.0 cm.) long.

* * * * * * *

6. Section 2.57 is revised to read as follows:

§ 2.57 Facsimiles.

When, due to the mode of applying or affixing the trademark to the goods, or to the manner of using the mark on the goods, or to the nature of the mark, specimens as above stated cannot be furnished, five copies of a suitable photograph or other acceptable reproduction, not to exceed 8½ inches (21.6 cm.) wide and 13 inches (33.0 cm.) long, and clearly and legibly showing the mark and all matter used in connection therewith, shall be furnished.

Effective date. These amendments shall become effective May 6, 1974.

Dated: March 25, 1974.

C. MARSHALL DANN,
Commissioner of Patents.

Approved: March 25, 1974.

BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc.74-7796 Filed 4-3-74; 8:45 am]

U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*